THE

NEW ENGLAND FARMER

DEVOTED TO AGRICULTURE, HORTICULTURE, AND KINDRED ARTS.

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DECEMBER---THE LAST MONTH OF THE OLD YEAR.

"Thou art passing, passing old year,
In the shadowy mist afar,
With thy last faint flash of revelry,
Like the light of a falling star.

MRS. BROOKS.

DECEMBER, the last month of the year usually brings to us established winter weather before it closes. The trees are stripped of their leaves, the flowers have faded, the fields are brown and uninviting, or, perhaps, covered with snow; the cloudy atmosphere wraps us about with dewiness and chilliness; the birds have mostly gone, and the reptiles and other creatures, that sleep or hide during the cold weather, have retired to their winter quarters.

The operations of the farmer on the soil are now greatly contracted, so that he can give time and careful attention to the domestic animals which are dependent upon him for comfort, and even for the means of sustaining life itself. They have been faithful co-workers with him in preparing the soil for the production of crops, in cultivating them during the growing season, and, when ripened, in securing the rich harvests that are to sustain all, man and beast, during the inclement winter months.

To the superficial observer, all nature now seems inactive and dead. But it is not so. There is more of decay and death in the summer than in the winter months. When the soil is open and the sun sends its creative beams upon it, and gentle rains send their refreshing influences through its every pore, then vegetable matter springs into life rapidly, comes to perfection and dies. Plants in perpetual succession,—from early April to the time when the earth is bound in solid frosts,—start into life, grow, ripen their seeds and cast them upon the ground. Their little life is then over. They have performed their part, have done all they could to perpetuate their kind, and then return to their native dust. And so it is with insect life. They come, live their brief day, perform their part in the grand scale of animated nature, and go down to the dust, to be succeeded by others, whose appropriate season had not yet arrived.

If we turn our thoughts more closely to the operations of Nature, we shall not find DECEMBER less efficient in carrying on the grand work of the months than any of her sisters which have preceded her. There is little of decay or death now. Millions of buds are

hidden in the axils of branches, having stored, or are storing up food for the production of future leaves and blossoms and fruits. So millions of roots are seeking new sources of supply, pumping and imbibing and gaining new power, even though winds are chill and the earth is covered with a mantle of snow. These operations are not so obvious as the summer-growth; but the summer growth could do nothing without them.

DECEMBER, then, need not be a dark and gloomy season. It has its peculiar bright and cheerful aspects; the cloudless winter evenings; the starry heavens; the crystal snows, contrasting with the evergreen of the pines, hemlocks, spruces and firs. The house-plants, also, become more beautiful and more highly valued than ever. How bright and cheerful they stand in the sunny nooks of the parlor, shedding their fragrance all around them, and teaching us lessons of gratitude and trust.

Then there is one circumstance in DECEMBER which ought to inspire us with a deeper gratitude than any thing in our material life. It is *Christmas*—the festival of the Christian church,—in memory of the birth of Him who brought "Life and Immortality to light." Our English ancesters celebrated this event with the most lively gratitude. They made it a holiday for all, young and old, rich and poor, master and servant. They adorned their houses with green boughs. The whole nation were in as happy a ferment at Christmas, with the warmth of exercise and their firesides, as they were in May with the new sunshine.

This is the way to turn winter to summer, and make the world what heaven has enabled it to be; but as some people manage it, they might as well turn summer itself to winter. Hear what a poet said who carried his own sunshine about with him:—

"As for those chilly orbs, on the verge of creation,
Where sunshine and smiles must be equally rare,
Did they want a supply of cold hearts for that station,
Heaven knows we have plenty on earth we could spare.

Oh, think what a world we should have of it here,
If the haters of peace, of affection, and glee,
Were to fly up to Saturn's comfortless sphere,
And leave earth to such spirits, as you, love, and me.'

"But there is Life in Death. Not in man's inspired writings only, but in every lineament, in every movement of our great mother Earth all around us. All over this globe, Death seems to stalk triumphant. The summer passes away, flowers fade and forests decay; field and meadow are buried in deep slumber. Broad lands are swallowed up by the hungry ocean, and gigantic mountains sink to be seen no more. But Death has found his conqueror in Nature also. What perishes, rises again; what fades away, changes but form and shape. Sweet spring follows winter; new life blossoms out of the grave."

NUMBSKULLS AND BOOK FARMERS.

The author of "Elements of Agriculture" and writer of the "Ogden Farm Papers" has undertaken to test the principles of scientific agriculture in farm management. It is understood that he is not stinted or cramped for want of means necessary to prosecute such experiments as his theoretical knowledge or his practical experience may suggest. But as time is required for the development of any new system of agriculture, people ought not to be too impatient for results. That some of his country neighbors are not only impatient but impudent we infer from one of his late "Papers" in the *American Agriculturist*, in which he waxes indignant:—

But, unless one has a particularly tender hide, the skiving that he gets in a few years' experience of the twaddle of country neighborhoods will turn his cuticle to leather, and, unless his wits are unusually dull, will teach him the art of chaffing back again sufficiently for his own protection. I generally know, when I write, just about what sort of comments I shall elicit from a class of numbskulls that collect at the Four Corners store on a rainy afternoon for the discussion of book farmers such as I; and I am sufficiently used to the process not to be deterred by it from writing whatever I think more intelligent men may be glad to read.

He alludes to the request that was made sometime since for his "balance sheet" and to some questions more recently asked, and says,—

"Having spent a good share of my time, first and last, gossiping with brother farmers in stores and grist-mills, I am not at all blind to the fact that even simpler questions than these lead to my being hauled over the coals and chaffed about in a sufficiently uncomplimentary way to satisfy any modest man's highest ambition."

George E. Waring as well as Tim Bunker are unfortunate in their association with farmers at grist-mills and the Four Corners' store, and we would advise them to call on farmers in their fields or at their firesides, where any suggestions, however scientific, will be listened to respectfully, though we may not promise that the visitor will not be "hauled over the coals" of a thoughtful inquiry, or that questions will not be propounded that could hardly be expected to originate in skulls that are numb.

POULTRY ON A LARGE SCALE.—The *Rural New Yorker* publishes an article from the *London Field*, which characterizes the account of the great poultry establishment of Mme. De Linas, at Charney, South America, in Mr. Wright's Practical Poultry Keeper, as a fiction; and also the story of a great Paris establishment, where it was said the poultry

was fed on cheap horse flesh, which went the rounds of the papers a few years ago. This writer, who is supposed to be Mr. Tegetmeier, regards these statements as "ridiculous sensational stories of impossible poultry farms that never existed except in the fertile imagination of some wretched scribblers, hard up for a subject out of which to earn a few shillings," and he gives some very good reasons for this opinion.

For the New England Farmer.

DOES INTELLIGENT FARMING PAY IN MASSACHUSETTS?

This is a fast as well as a luxurious age. As *money* furnishes the means of fast and luxurious living, so it has become the standard scale that weighs the common events of life; hence the question at the head of this article will be considered and weighed in the pecuniary balances alone.

The subject has been suggested by notes of wailing that have occasionally appeared in the columns of this paper in regard to the profits of farming, which it is feared will foot up on the wrong side of the ledger. The past two years have indeed produced short crops, and perhaps it would be too much to expect to hear songs of rejoicing at the present time. The children of Israel, when a song was required of them, could not sing in a strange land, and hung their harps upon the willows.

If farming pays in the heart of the Commonwealth, ought it not in other sections of the State, in the long run? In this town, (Barre,) there are three cheese factories, which may be designated as Central, Southern and Western. Within the area of a mile of the Central and Southern there is scarcely an instance to be found where a farmer who has devoted his whole attention to legitimate farming for ten years or more, that is worth less than three thousand or five thousand dollars, while some will approach to twenty and even fifty thousand dollars, which has been acquired through agricultural pursuits. As "a live dog is better than a dead lion," I will select some instances of successful farming from representative men. Their names are legion, and there is such a uniformity in a general sense in the amount of business done, in the number of the herd, in selected stock, and to quite an extent in the size and value of the farms themselves, that when these are described a great many more would merit somewhat the same description. Some twenty-five to thirty head of dairy cows is the orthodox number, and part Durham is the ruling grade.

The Chairman of the Board of Directors of the Southern Factory, is Dea. T. P. Root, whose farm lies on the hillside, sloping towards the east, occupying a beautiful and commanding situation, but which it may be presumed is hard to cultivate. Mr. Root commenced operations upon this farm some twenty-five years ago with his father-in-law, Reuben Haynes, clearing up new land, and if I mistake not the estate was heavily encumbered with debt,—sometimes the hardest of all encumbrances and will make the farmers' heart ache the most—since which time all these have been removed, and the owner of this fair domain "goes on his way rejoicing." Mr. Root has experimented much in manures, sowing grass crops and ploughing in, &c. I omitted to state in the proper connection above, that it is characteristic of all these farms, that the sons, or sons-in-law remain on the farm. The venerable philosopher of the *Tribune*, who has enlightened the world on "What I know about Farming," says, "I can understand very well the reason why the boys leave the farm. Epitomized it is thus: their school books and reading matter contain nothing calculated to interest them in agricultural pursuits, and their fireside reading is not of geological or chemical lore, or related sciences, but of tournaments, or knightly troubadours, of fairies and sensational fiction." This is true to a certain extent; but it is also true that every improvement made, every stone wall and outhouse erected, and every tree planted, identifies youthful affections and associations with these improvements, and is a living prayer to the Heavenly Father that the successor will stick to the farm and beautify it still more. The subject of this short sketch has a goodly family of boys, of which one or more will remain on the farm. I believe in big families of children—that it pays, especially on a big farm—although like some railroad stocks they are not immediately remunerative. During the vernal months this farm, as seen from the village below it, is a perfect Acadia of beauty.

Half a mile below is the farm of Luke Adams, which is carried on by himself and son, whose fertile fields show high cultivation. Mr. Adams, senior, has kept a diary for many years, carefully noting every fact connected with his business, and the high culture and successful results of his well laid plans attest the value of this method. The past two years, though a most unprecedented season of drought, the meadows have worn their green mantle as of yore, and yielded abundant hay crops. Mr. Adams, junior, is of the third generation who have occupied the farm.

The next farm is owned and worked by Job Stetson and his son, George Stetson. Ten years ago, or such a matter, Mr. Stetson bought this farm partially on credit, but years ago it was redeemed from all encumbrance. Last year they cut fifteen tons of hay, more than any year before.

The Chairman of the Board of Directors of the Central Factory, is Henry E. Rice, who has a fine place under good cultivation. Mr. Rice, senior, is still living on the old place, and walks about with a firm tread and form unbent, at the age of eighty-six years. This is a square built farm with a square built owner upon it.

Another leading farmer is A. H. Holland, belonging to this district, who distributes the manure with a seeming reckless prodigality, which tells at the cheese factory,—his cows rating among the first. No improvements have been spared here; but notwithstanding, the sons will not remain on this farm, although in the march of events a son-in-law may; for it is impossible to conceive that two such flowers as a splendid farm and its prospective mistress, shall bloom in the conservatory of life unheeded and unseen.

There are some five amateur farmers in the town, among whom is the editor of the *Gazette*, J. Henry Goddard, who seldom tells through the columns of his paper, "What I know about Farming," evidently fearing if he acts the schoolmaster, too big boys and too many will come to school.

Poor farms are scarce in this town, but mechanical business is at low ebb, although the southern part has been galvanized into new life by the passage of a new railway, which will soon be in operation. There is no doubt that the force of association and competition contribute greatly to the prosperity of the farming interest in a town like this; but public improvements add very much of their quotas to the general result. The broker understands this when he sets forth prominently in his advertisement of two farms for sale, its proximity to churches, schools and depots. Churches make the best society to be found this side of heaven, and where this interest is indifferently supported, the farms are scrubby, the stone walls tumble, the outhouses decay, and the boys rush away into the shop and are lost to the farm forever. The church *pays* because it compels men to be social, energetic and wholesomely ambitious. There are many who think it pays in other respects, but that will not be considered here. There are some, too, who may think that farming pays in other respects as well as in "filthy lucre;" but those ideas are primitive and old fashioned. It gives an indescribable charm to that fine old Saxon word Home. The New England farm is protected from the fire blast which so terribly desolated the prairie homes of Wisconsin. Its moderate profits and hard labor do not allure speculators who overrun a good business. It gives health and happiness to the farmer.

The question, then, "Does Intelligent Farming Pay in Massachusetts?" may be answered, as Mark Twain says, thusly: it pays if the necessary conditions are complied with—which are public improvements and—private improvements—not forgetting the good, live, agricultural newspaper—for instance, like the one you hold in your hand, good reader; and, let me add, lay on the manure lavishly. As the miller of Mansfield said to his boys in his dying charge, "Get money if you can honestly, boys, but get it." As there is no dishonest way in making manure, it is safe to follow the miller's advice, only substituting the word manure for money, which will prove synonymous terms in the end. It Does Pay; it pays as it paid the Dutchman, who at the breakfast table on the first morning of the hay season, set down with his hired man to a dish of buttermilk and whey. The "help" looked sorrowfully on the bill of fare, eat sparingly, and retired to the hayfields, when hanging his scythe to the limb of an apple tree, he sung with a dolorous pitch—

"Buttermilk and whey;—
No work done to-day."

Next morning the bill of fare was amended by the substitution of bacon and eggs.

After breakfasting heartily he went into the field and sang this merry lay, at the same time cutting down the grass something like a first-class mowing machine:—

"Bacon and eggs;
Take care of your legs."

The ground is your servant who will work for you with a will if you give substantial food—though unlike the hired man it requires food but once a year—but then it craves enough to last all the year round. D. W. H.

Barre, Mass., Nov. 7, 1871.

Deep Ploughing.—The last monthly report on the progress of scientific farming on the Ogden Farm, near Newport, R. I., under the direction of Col. Geo. E. Waring, closes with the following paragraph, as printed in the *American Agriculturist*:—

In general farm matters there is nothing of especial interest to report. We jog along very much as usual, well satisfied of the benefits of soiling, and not especially dissatisfied with our results in any respect, save that, in spite of thorough cultivation and heavy manuring, we still feel the ill effect of the deep ploughing of about ten acres of the farm in the autumn of 1868. For ordinary crops it does very well, probably much better, because of the deep ploughing, but about two acres of carrots planted upon it will bring a very insignificant result, because of the injurious effect of the upturned clay on the delicate and slow-growing seedlings.

Beet-sugar in California.—The Alvarado Beet-Sugar Company are now well under way again in the manufacture of sugar. It is stated that the supply of beets this year will reach 800 tons—16 tons to the acre. The juice yields most satisfactorily. The amount of sugar made last year was 500,000 pounds. This year it is expected to reach 1,125,000 pounds. This will employ the mill about five months. The remainder of the year will be occupied in refining imported sugar. The Sacramento Company will soon be ready for operations. This company expect to realize about 400 tons of beets this year.—*Ag. Rep.*

For the New England Farmer.

THE GARDEN IN DECEMBER.

The faithful engineer of a railroad train keeps a sharp look-out ahead, to see that the track is clear that accidents may not happen. Like him, the good gardener is always on the look-out, and providing for the future. The gardener who neglects his garden as soon as the last crop is off and frost causes vegetation to cease, and gives it no more thought and does nothing to forward future culture till spring opens, is always behind hand; while he who is constantly on the look-out, anticipating what may be, and keeping everything in readiness to take advantage of the changing seasons, always has *early* vegetables, late vegetables, and vegetables throughout the whole season.

Although December days are short and cold, yet there may usually be some time found in which something may be done in the garden at clearing up, pruning, repairing tools, hot-bed frames, sashes, stakes, trellises, &c.; and the long evenings are just the time to get all the information of the best practices of others with which to compare our own. Resolve and plan that the future garden shall excel the past in more respects than one. With the practically useful, let there be a proportion of the ornamental. The latter need not be of the expensive sort, but such as may be done at odd intervals, of home manufacture, from home materials. Rustic seats for some shady nook may be made, from materials brought from the woods. Vases, arbors and other useful as well as ornamental things may be constructed from rough material selected from limbs, branches, &c., of trees and shrubs.

Rotation of Crops and Plan of Garden.

If we would preserve the fertility of the soil in the garden, and still obtain the greatest possible products, we must plan for, and adopt, some rotation of crops — it is as essential here as on any part of the farm.

The best form for a garden is a rectangle or parallelogram; it may then be divided into four equal portions, exclusive of the borders, to be occupied by asparagus, rhubarb, and like perennial plants, by walks through the centre and crossways. Thus we have four compartments, giving us an opportunity of a four-course rotation. No one division can be exclusively devoted to one article, or variety, as we wish to grow so many kinds; but we must group them, so as to occupy the division to which their nature suits them. In the border, some three feet wide with path next inside two feet wide around the garden plot, we have room for beds of small things, as well as for those requiring a more permanent location. Within, we have a rectangle divided into four main compartments, with a narrow border walk. These may, for convenience, be numbered 1, 2, 3, 4.

In No. 1, potatoes may be planted, to be followed by cabbage and its tribe, transplanted between the rows; after the potatoes are dug the cabbage will occupy the ground, which after the cabbages are removed in the fall, should be ridged, and deeply dug over, so as to expose the soil to the action of winter frosts &c., and permit the free escape of surface water.

In No. 2, Corn and Lima beans. These the second year to occupy the plot No. 1.

In No. 3, plant onions, spring spinach, early beets, early cabbage, transplanted, celery, okra, tomatoes and egg plants. Some of these will have to be planted between the rows of others as intermediate or stolen and succession crops, while the early maturing crops are removed to make room for the later. The second year these crops occupy plot No. 2.

In No. 4, plant peas, string, or snap beans, long beets, carrots, parsnips and salsify. Early crops as removed may be succeeded by turnips, and spinach for fall and winter use. The second year these crops occupy plot No. 3, and are succeeded, the second year by the crops on No. 1, the first year. Thus we complete the round.

There are many kinds grown that are not here mentioned, which are introduced between the others and grown as stolen crops. Our object here being more to suggest a systematic course, by mentioning a few of the main crops. Experience teaches the gardener where and how to obtain best results; and it can hardly be expected that the inexperienced will meet with the same success even though he may have the best theory in the world. Experience as well as good judgement are required in order to know how to adapt fertilizers to crops, how to fit the soil, and in short the whole routine of culture. The mere rotation will do little towards obtaining large crops. There must be skill in adapting means to ends.

Celery.—Protect the tops by means of leaves or litter. A small quantity may be protected and sheltered by means of boards with straw or hay underneath, and can be reached during mild weather.

Cold Frames.—The chief points in successfully wintering plants in these are to give proper ventillation, without too great exposure of cold, and to keep the plants perfectly dormant and yet healthy. Last season letters of inquiry came to hand asking if a bed of snow, as it fell, over the frames would do harm? Snow seldom is injurious to pants in cold frames properly constructed, and may lie on for some weeks without detriment, oftentimes. Mice sometimes are destructive to the plants; give them poison or trap them. Keep shutters and mats in readiness for use in severe weather.

Manure and Compost.—The winter season is the time for accumulating a full supply of fertilizers. The stables, yard, piggery, privy and hennery, are to be made the most

of by using dry muck, earth, straw, litter and other absorbents and divisors to absorb the liquids and increase the quantity. Fertilizers may be collected from many sources; villages and cities will furnish large supplies of various kinds of refuse, waste, and stable manure, and often may be had at reasonable rates when accessible.

Seeds.—See that those of home production are well cared for. Clean out all of doubtful quality or identity. Be ready to order those not raised, as soon as Catalogues are out.

Tools.—The time of leisure is the time to repair and put in order all implements. If you have no tool room set apart a place at once and fit it with the essentials, so that there may be a place for everything, and you may know when a thing is missing.

W. H. White.

South Windsor, Conn., 1871.

For the New England Farmer.

THE BLOOD, AND ITS CIRCULATION.

In all organized beings—that is, in all beings endowed with life, the process of nutrition and growth is carried on by means of a circulating fluid. In the vegetable kingdom, this fluid is called *sap*; in animals it is called *blood*. The blood of insects is without color, while that of fishes is red in the gills, heart, and liver, but nearly colorless in other parts of the body. In *mammals*, or animals which suckle their young, and in birds and reptiles, the blood is of a dark purple color when drawn from a vein, and of a bright scarlet when it comes from an artery.

Soon after blood is taken from a living animal, it begins to coagulate, or become solid; and if allowed to stand for a few hours, the clot will be found diminished in size, firmer than before, and floating in the midst of a yellowish fluid, called *serum*.

The *serum*, or liquid which remains after coagulation, is composed principally of *albumen* and water. *Albumen* is a colorless semi-fluid when pure, but is coagulated or hardened by heat and by acids. It forms a very large proportion of the brain, spinal cord, and nerves. A good example of this substance may be found in the white of an egg. The *water* of the blood is one of its most important constituents, and forms by far the greater proportion of its bulk,—one thousand parts of blood containing seven or eight hundred parts of water.

The *coagulum*, *clot* or *crassamentum*, which is the solid part of the blood, is composed of *fibrin*, and numerous red particles, called *blood discs* or *corpuscles*. *Fibrin* is of a whitish color, inodorous, insoluble in cold water, coagulates at all temperatures, and constitutes the basis of the muscular tissue. The *blood discs*, which contain the coloring matter of the blood, vary in size and form in different species of animals. In man, they are little round cells, flattened like a piece of money, and from 1-4000ths to 1-2800ths of an inch in diameter. In birds, reptiles and fishes, they are much larger. Their number corresponds, very much, to the temperature of the animal. In birds, they form fifteen per cent. of the whole mass of blood; in man they form twelve or thirteen per cent.; and in fishes and some of the other cold-blooded animals, they form only five or six per cent. The coloring matter of the blood contains nearly seven per cent. of iron.

The blood is found by chemical analysis, to have nearly the same elements, combined in about the same proportions, as they exist in the animal. It is therefore fitted to carry nutriment to every part of the system, and thus renovate the tissues,—to furnish at one point, the elements of bone; at another, those of muscles; at another, those of brain, and so on. The blood also takes up and carries off, through appropriate organs, all waste particles, and thus maintains in the body a continuous round of organization and disorganization, of growth and decay.

The organs which carry the blood from one part of the body to another, constitute, when taken together, the *circulatory apparatus*, and the course of the blood through these organs, is called its circulation. In insects, the blood is sent to the different parts of the body by the alternate contractions of different portions of a central vessel which extends along the back, forming a rudimentary heart. In the crab, lobster, and other members of the class *crustacea*, there is a single sack or ventricle, which receives the blood from the gills or lungs, and propels it to other parts of the body. In fishes, we find a distinct heart, divided into two cavities—an *auricle*, and a *ventricle*. Reptiles and amphibious animals, such as the snake, lizard, frog, crocodile, &c., have two auricles or reservoirs, and one ventricle or propelling organ. In the class *mammalia*, or animals which suckle their young, and in birds, we find a double heart, or what is equivalent to two such hearts as the fish possesses, with a complete double circulation. Indeed, the heart is constructed on the same general plan in all the warm blooded animals, so that the heart of an ox, a horse, a sheep, or a dog, with the entire circulation of blood, may be taken to illustrate those of the human subject.

The heart, then, is the great central organ of circulation; and the double heart is, in form, somewhat like a pear. In man, it is situated in the front part of the thorax or chest, between the lungs, with its base above, and inclining obliquely backward towards the right shoulder, while its apex points forward, and to the left side, between the fifth and sixth ribs, where its beatings can be most distinctly felt. It is surrounded by a firm smooth membrane, called the *peri cardium*, the office of

which is to protect the heart against friction by contact with other organs.

The heart is a large, strong, hollow muscle, the walls of which are composed of fibres running, some longitudinally, but most of them in a spiral direction. It is divided in the direction of its length, into two halves, each representing a single heart, divided into an auricle and a ventricle; thus we have a right and a left side of the heart,—a right auricle and a right ventricle; a left auricle and a left ventricle. The ventricles make up the body of the heart, the auricles being, in reality, only appendages to the heart proper, which serve as reservoirs for the blood. Butchers call them *deafears*.

The walls of the left side of the heart are thicker and stronger than those of the right, and the reason is—the right side sends its contents only to the lungs—a short distance—while the left side propels its blood to all parts of the system. The walls of the auricles are also much thinner than those of the ventricles.

The auricles are separated from the ventricles by triangular folds of membrane, which perform the office of valves. Those which separate the right auricle and ventricle are called *tricuspid* valves, because they have three points, and those which separate the left auricle and ventricle are called *bicuspid* or *mitral* valves, because they have two points. There are also three valves at the entrance of the *aorta*, the great artery of the body, and the same number at the mouth of the pulmonary artery. These six valves are called *semi-lunar*, or *half-moon*, on account of their peculiar shape. These several valves are kept in position by small white cords, called *chordæ tendinæ*. The ventricles are separated, one from the other, by a strong muscular *septum* or partition; and within each ventricle are seen numerous fleshy columns, called *columnæ carneæ*. These are supposed to aid in the contraction of the ventricles.

The channels of communication between the heart and the several parts of the body, and through which the blood is propelled, are the *arteries*, *veins*, and *capillaries*.

The *arteries* are cylindrical tubes, composed of three coats. The external or *cellular* coat is composed of condensed cellular membrane, and forms a strong, tough investment to the artery, enabling it to resist the action of the heart. The middle or *fibrous* coat, by its elasticity equalizes the flow of blood through the vessels, and by its contractility enables the arteries to close their divided extremities when they are cut or torn, so as to prevent a great loss of blood, unless the vessel be of considerable size. The internal or *serous* coat is a thin smooth membrane, which permits the blood to flow with the least possible friction. The arteries gradually diminish in size towards their extremities, and finally terminate in minute, hair-like vessels, called *capillaries*, which are too small to be seen with the naked eye.

The *veins*, like the arteries, are composed of three coats, but they are much thinner, so that the veins do not, like the arteries, retain a cylindrical form when emptied of their contents, but collapse, or become flattened. The veins commence by minute vessels, called *radicals*, which have their origin in the capilliary arteries. They unite, one with another, to form larger and still larger branches, until they terminate in two large trunks—the ascending *venacava*, and the descending *venacava*—which convey the blood directly to the heart.

The *capillaries*—so called on account of their resemblance to hairs—are so minutely distributed to every part of the body, as to render it impossible to puncture the skin anywhere, without wounding some of them; and so small are they, in the human subject, that a single one of them will not measure more than 1-3000th of an inch in diameter. In the capillaries, the blood is brought into immediate contact with all parts of all the tissues of the body, and in them it parts with its nutritive elements, so that these little microscopic vessels constitute the medium through which the functions of nutrition and secretion are performed, as well as the channels of communication between the arteries and the veins.

Having described the organs by which the circulation of the blood is performed, we will now trace its course through them; and in doing so, we begin at the left side of the heart.

By the contraction of the *left ventricle*, the blood is forced through the *semi-lunar valves* into the *aorta* or great arterial trunk, and along its successive branches—the smaller arteries—into the net-work of the capillaries. Here the blood parts with its nutritive elements, and is changed from a scarlet to a purple color, and is collected into the small veins. It flows through their converging branches into the *venæ cavæ*, and finally into the *right auricle*, which empties it through the *tricuspid valves* into the *right ventricle*.

From the *right ventricle*, the blood is impelled through the *semi-lunar valves* into the *pulmonary artery*. This artery divides near the heart, one branch leading to the right lung, and the other to the left, so that through this artery and its branches, the blood is carried to the *capillaries of the lungs*, where it is exposed to the action of the air. From the *capillaries of the lungs*, the blood enters, in converging streams, the *pulmonary veins*, which return it to the heart and empty it into the *left auricle*, which, in its turn, empties it through the *bicuspid* or *mitral valves* into the left ventricle,—the point whence we started.

The course of the blood from the left side of the heart through the arteries, capillaries, and veins, back to the right side of the heart, is called the greater or *systemic* circulation;

and the course of the blood from the right side of the heart through the lungs, and back to the left side of the heart, is called the lesser or *pulmonary* circulation.

The heart of a man in middle life, whose blood averages about twenty-eight pounds, empties itself of two ounces at each contraction, with a propelling power of about four and one quarter pounds; and the heart of such a person contracts about seventy-five times in each minute, so that in every three minutes, twenty-eight pounds and two ounces of blood pass through the heart,—a quantity equal to the weight of all the blood in the body. It is also estimated that in man, the blood completes its entire circuit through the heart, lungs, arteries, capillaries, and veins, in less than one minute. This estimate is based on the rapidity with which poisons are transmitted from one part of the system to another; but many physiologists suppose the time to be about three minutes, in most persons, and in ordinary circumstances.

The phenomenon known under the name of "*pulse*," is the motion caused by the pressure of the blood against the coats of the arteries at each contraction of the ventricles, so that the pulse and the action of the heart correspond, except in some rare instances. The frequency of the pulse, and of the heart's motions, vary at different periods of life, and in different circumstances. During infancy and childhood, the pulse is from one hundred and fifty. to ninety, or less; in middle life, it is from seventy-eight, to seventy; and in old age, it is from sixty-five to fifty.

The pulse is quicker in women than in men. It is also quicker after, than before eating; and slower during sleep, than when awake; in the evening, than in the morning; in the sitting, than in the standing posture. Fear, anger, and the stronger passions, move the heart to violent action, and accelerate the pulse; while sorrow and melancholy retard them, both in frequency and in force.

J. H. STEDMAN.

West Brattleboro, Vt., Oct., 1871.

FOUL BEE BROOD.

Mr. E. Rood, of Detroit, read a paper at the late Bee-keepers' Convention, at Kalamazoo, Mich., in which he said he had prepared a paper, making it of respectable length and having some regard to details, but that in reality he knew little about the subject, though, perhaps, he was as well posted as any one, as he had watched the disease for many years and had lost a great many colonies by foul brood. He described the disease at considerable length, showing an intimate knowledge of the little industrious insect, but was unable to clearly determine the cause of the disease or give any remedy. It was contagious and would go through an apiary as cholera or small-pox would a human hive of people. He used disinfectants to prevent its spread and was very careful to destroy bees and honey after a hive had been attacked. He thinks nothing can save a hive of bees after foul brood appears, but something may be done in preventing its spread. He hoped that an effectual preventive or remedy would be discovered, but he knew of none, nor of anybody who did.

When he had concluded, a discussion took place in which a great number of speakers took part, but there was nothing elicited that solved the proposition in the paper.

Report on Hives.

The committee to whom was referred the resolution concerning the requisites of a bee-hive, submitted the following report:—

1. For out-door wintering, we recommend a hive not exceeding twelve inches in depth, nor less than ten inside of the breeding chamber, for use in northern latitudes.

2. For inside wintering, we consider that a hive may be as shallow in depth as five inches in the breeding department.

3. We believe the breeding chamber should not contain less than 2000 cubic inches actual breeding space, nor more than 2500; the same to be so constructed as to admit of upward ventilation at pleasure, and the entrance to be contracted so as to admit not more than one or two bees to pass or repass at the same time during the winter; believing that a very heavy current of air being allowed to pass through the center of the hive at this season of the year will serve as a cause of disease.

4. We believe that a hive to be cheap in cost to the bee keeper, and at the same time adapted to procuring honey in the comb, or by the use of the melextractor, should be so constructed as to admit of boxes, of shallow frames, or of frames equal in size with those of the breeding chamber. This we regard as a hive well adapted to general as well as special purposes.

5. We would not under any circumstances recommend or encourage the use of any but the movable comb hives, feeling well convinced that no other method will enable the bee-keeper to make his profession successful or profitable.

VALUE OF MUCK.—In a discussion before the Little Falls Club, Mr. A. L. Fish stated that twelve years ago he drew out 3000 loads of muck, and applied it at the rate of fifty loads to the acre, pulverizing and mixing it with the soil. The result was good crops without further cultivation. Two years later he drew out 4000 loads, and applied it at the rate of 100 loads to the acres, spread with a plank to which was attached a tongue to hitch the team. The land was planted to corn. After taking two crops from the land it was put down in meadow, and it has produced at the rate of two tons of hay per acre ever since,

though before the application it did not yield one ton per acre. It did not act so quickly as manure, but was more lasting.—*Rural Home.*

FAT BREEDING ANIMALS.

Mr. W. H. Southam of Chicago, formerly of England, a great writer for Western papers, and an advocate of the Hereford breed of cattle, who seems to take much pleasure in stroking the fur of Short-horn breeders against the pile, criticises, in the *Michigan Farmer*, the Short-horn stock exhibited at the late Illinois State Fair at Du Quoin:—

The whole of the Short-horns came to show with as much flesh as they could carry—not one of them but was extra Christmas beef, but no prospect of milking or raising calves. I am convinced that but very few of them would produce a live calf, and if so, not a healthy one.

This example was set in England, and would have died out long ago had it not been for Americans and Australians going there with more money than judgment, to buy fat animals, called breeding ones, and made so to hide their numerous faults. English breeders had seen the error of their ways, and were coming to a proper sense of their situation, when foreigners came in with their "almighty dollars," to outbid Englishmen. The demand for fat animals received, and enormous prices were given for fancy stock, far beyond the reach of a practical man who understood the art of breeding, and was calculated to produce such as were suitable for butcher, consumer, and the dairy. Grand titles were placed upon their heads, and a promise to pay in "bank bills" hanging at their tails. Thus the battle went on—Americans with their almighty dollars, the Australians with their pounds, shillings, and pence, had to contend against the fancy men of England, such as Mr. Betts, and the kid glove men of confectionary notoriety, Capt. Gunter, Col. Townley, of fancy Butterfly fame, Mr. Thornton and Mr. Stafford, as middle men, and many others of more money and less judgment, urging each other on to fame and notoriety, from the extravagant prices they paid. Many animals bought to-day at very fabulous prices died to-morrow with disease, and others who did not breed went to the butcher, or died with a heart encased with fat. Such was the fascinating system of fancy men of money; but where did the profit lie? Where would such men have been, had they had nothing more than their breeding establishment to support them? In that case their moneyed prodigality would have found them out.

REMARKS.—If the case is as bad as represented by Mr. S., how happens it that so large a proportion of all the beef animals from the West which feed the eastern part of the United States are grade Short-horns?

HOUSING STOCK IN AUTUMN STORMS.

The care of stock during the Winter which is rapidly approaching, is a matter which causes unusual anxiety to the farmer, on account of the short supply of forage and the low price and light demand for stock, which puts it out of his power to reduce the numbers of the latter to correspond with the size of his hay mows without submitting to a very great sacrifice.

Under these circumstances, the only alternative left to the farmer is the practice of rigid economy in the use of the supplies he may have laid up for his cattle in Winter. Many a farmer to-day looks forward with gloomy anticipations to the long New England Winter, seeing no way, even by close feeding, to carry his stock through in a condition to be of any value in the Spring.

There is one precautionary measure, too often neglected, which will be found to assist materially in the difficult task the farmer has in hand. It is the saving of condition and vigor of animals which may be made by a little extra pains in protecting them this Fall. It is a well-known fact that stock coming to the barn in vigorous health and fair condition, is carried through more easily and cheaply, and comes out heavier and better than if it is in low condition and vitality at the opening of Winter. Exposure to storms in the Fall is more injurious to stock than farmers are willing to admit. The effects of such exposure this Fall will be more than usually prejudicial because Fall feed is scanty, and farmers have not the usual surplus of winter feed with which to overcome the injury which may be sustained before the stock comes to the barn. The few pounds of flesh which may be lost by an animal which is forced to remain without shelter in storms of cold rain or sleet, is very slight compared to the diminution of tone and stamina.

We think it good economy, short as the hay crop is, to house and feed farm stock at the barns through cold storms. — *Vt. Record and Farmer.*

BRAN FOR POULTRY.—A correspondent of the *Germantown Telegraph* says, "that the best food to make hens lay is a mixture of bran and middlings. His mode of preparing the feed is to mix about five parts of bran with one of middlings. 'In the morning,' he says, 'I wet up with water about four quarts of the mixture in a large tin pan, taking pains to have it rather dry, though all damp. This I set in a warm, sunny spot, south of their shed, and they walk up, take a few dips, don't seem to fancy it like, but they soon return to it, and continue to feed from it at intervals during the day.'"

A NEW FARM OUT OF AN OLD ONE.

AMIDST the reiterations that "farming is unprofitable," the frequent unskilful management of the soil, and the flight of the young from their ancestral acres, it is pleasant occasionally to find the reverse of all this; to see new buildings take the place of old and dilapidated ones; snug, instead of inconvenient barns; substantial and tidy fences instead of sprawling walls, skirted by ages of accumulated weeds and brush; and broad and smooth fields which yield two to three tons of hay per acre annually, instead of rough, moss-grown "mowings."

When Mr. R. W. Emerson delivered an address before the Middlesex Agricultural Society several years ago, he said, "there is a Concord under Concord," conveying the idea that under the surface so long scraped and robbed, there are large and fertile farms which have not yetbeen cultivated.

It was our good fortune a few days since to find that one of these farms had been discovered, and it required about half a day to examine it, and learn how a *new farm had been made out of an old one!*

The farm to which we refer, lies in the westerly part of Concord, Mass., is the property of Mr. Joseph A. Smith. and twenty years ago was one of the roughest and most unpromising. It abounded with small stones in some places, and bowlders, large loose stones and ledges in others. The "balance" walls had changed their centre of gravity, so that it would be difficult to decide where it was intended to be originally. Their sides were flanked by lines of bushes and briars, affording convenient retreats for woodchucks, from whence to issue to feed upon the beans or clover in the fields, and for hosts of squirrels to emerge into the Indian corn hills.

Six cows, a pair of oxen and one horse, was the usual stock kept upon the farm. The hay upon which they fed, was mostly swale, that is, from the wet runs among the uplands, or from meadows that were never ploughed. And this, fifty years ago, was the usual style of farming, and was thought to be pretty good. In a great many cases, the amount of stock kept was less than on this farm. The idea of improving the farm so as to feed double the amount of stock, and raise double the amount of vegetables, fruits and grains at the same time, did not seem to have come into the calculations of the owners.

Out of this condition of things, is it any wonder that the idea became popular, that farming is unprofitable, and that the population of the rural districts in New England, has, and is constantly growing less?

At present, on this *new* farm, which consists of about 75 acres, are kept twenty-five cows, young and old, every one of which have been raised on the farm. They are grades of Ayrshire and the old red cattle. Six horses are also employed in farm work, taking milk to the station, and for a portion of the year in the delivering of ice.

All this stock is fed upon fodder cut upon the farm, and some $200 to $300 worth of hay annually sold besides. Ten cans, or about eighty quarts, of milk per day are sold through the year. This year, between the 10th of August and the 10th of September, Mr. Smith sent to Boston, by cars, 325 barrels of green corn, pickles and potatoes.

Last year, on about one and a half acres of orchard, he gathered 500 barrels of apples, for which he received $1.77 per barrel in Boston. This year he had twelve barrels, and of very poor quality!

In addition to these products, he raises vegetables, grapes, strawberries, asparagus, and some of the small grains, and is raising a pear orchard. The dwelling house has been improved, a large and convenient barn erected, together with carriage and other needed outbuildings. Besides these, he has purchased as much land as makes up the home farm, which is devoted to pasture and wood.

On the old farm, the annual products were in a ratio with the amount of stock kept, and about the same condition exists at this time. For instance, the stock has been increased fourfold, and so have all the other products of the farm.

The secret of this great improvement, was in gradually finding the "Concord under Concord," and giving it an opportunity to "bud and blossom as the rose;" and the leading steps in the work, were:—

1. To draw off the surplus water that stood under some of the best land. This was done over about eighteen acres, where some of the grass was cut which went to feed the nine head of cattle on the old farm.

2. On other portions of these swamp lands were alders, birches, and a variety of water-brush common to such places. These were torn out, piled and burnt. The plough followed, some portions were planted with potatoes, and others, not yet sufficiently dry for cultivation, sowed at once with seeds of the best upland grasses.

Thorough drainage preceded all this. Without that, nothing could have been done towards reclaiming and finding the farm that lay "under Concord."

3. These reclaimed lands have been kept in such condition as to produce from two to three tons of hay annually. The oldest of them having been ploughed once or twice, manured, and re-seeded, without being cultivated for any other crop than grass, so that these eighteen acres, in their first and second crop, give about fifty tons of hay each year; enough to fill a good-sized barn!

4. All the reclaimed meadows have been dressed with sand. First, as soon as the water had subsided so as to leave the surface hard enough to bear the team and load; and again as opportunity permitted, a slight coating at each time.

5. In addition to these, they have received an occasional top-dressing of composted manures, old and fine, and aided by small applications of ashes, bone dust, or some other reliable commercial fertilizer. The latter, however, only at a trifling cost.

6. The changes wrought under Mr. Smith's management are no less striking on the high lands of the farm, than they have been in the meadows and swamps. The surface of most of the farm, compared with the surrounding lands, is low. But among the meadows there are abrupt knolls, and patches of upland. These were dotted with bowlders of various sizes; some jutting just above the surface, and rising from that point all the way to four feet in height. Most of these have been sunk a foot below the surface, or where this could not well be done, blasted and carried off, and the holes filled with small stones, and sand and dressed with loam or manure. Thus, with few exceptions, the plough, mowing machine, tedder and horse rake, have free course over the fields, and are enabled to perform rapid and good work.

7. One side of the farm receives a large amount of surface water, the water-shed above being very extensive. In long rains, sometimes in a heavy summer shower, this land, though quite descending, would formerly be covered with water during the continuance of the rain, and continue so wet through the season as to prevent the growth of any plants but water grasses. Through these runs, Mr. S., has laid tile drains, crooking about among buried rocks, and picking the way through a substratum almost as hard as rock itself. A portion of these now yield two crops annually of fine upland grasses. These runs were not improved by the application of sand, although in some places having black muck underneath.

Such are some of the results of an exploration to find the "Concord that lies under Concord!" If every farm in the town had received similar treatment, its present valuation would be double what it is to-day.

This is one of the cases where progress and profit have been made, *within the farm itself*; where skill and energy have produced the most encouraging results, and not inherited capital. With the exception of supplying ice to a portion of the citizens, Mr. Smith has had no other business than farming; has engaged in no speculations in farm products, horses, cattle or lands, but has always found the earth liberal, responding to his own liberality in a ten-fold degree. His example is valuable, and is a great credit to himself, and equally so to his skilful and zealous co-worker, who manages the internal affairs of the family.

MANAGEMENT OF DAIRY COWS IN HOLLAND.

Prof. Geo. H. Cook, of New Jersey Agricultural College, furnishes the *Country Gentleman* an interesting article concerning Dutch Dairies. One that he visited was 15 or 20 miles from Amsterdam, on a farm of 207 1-2 acres, nearly all in meadow and pasture. The land was at the level of tide water but was well drained. There were 46 head of cattle

kept, of which 26 were milch cows. The average yield of each cow during the year was 4,894 quarts, a daily average of 13.6 qts. This average is remarkably large—and of course much above the general average of the country. The average yield of Dutch cows has been given at 2,835 to 2,940 quarts per year.

Prof. Cook speaks especially of the marvelous neatness of the cow stables which are under the same roof and only separated from the dwelling house by a partition and door. They are not used in summer, and as soon as the cattle are turned out to pasture in the spring, the stables are washed out, the floors either sanded or tiled. During the summer they are sometimes used for cheese rooms. During storms in spring or fall the cows are generally covered with blankets while at pasture. In winter the stables are frequently thoroughly cleaned and washed, and the cows are curried regularly.—*West. Rural.*

EXTRACTS AND REPLIES.

COVE SEAWEED.

I have a pile of some sixty cords of cove seaweed and the mud which is attached to the roots of the seaweed. What material can be added to improve the qualities of this collection, and what proportions and manner of composting? This "cove" seaweed with the mud attached, is a very different thing, and much superior to ordinary shore seaweed, as large numbers of minute animals are attached to the weed.

Last year I manured a piece of quite ordinary soil with similar cove seaweed, composted by mingling twelve two-horse loads stable manure, twelve loads fresh-water muck, that had been exposed to the air and frost a year or two, and 150 bushels of ashes from Maine lime kilns, with about six cords of the seaweed. The result was the best crop of corn I ever raised. I have seen statements that the lime ashes is of small value. Is it so?

Stonington, Ct., 1871. C. P. W.

REMARKS.—The compost described above seems to have produced highly beneficial results. All the articles used were excellent as fertilizers. How much influence may be imputed to each, it is impossible to tell. Nor can it be known whether such a compost is profitable, unless we know what the cost of the articles was, and how much land was manured with them. In 150 bushels of lime-ashes, there must have been sufficient alkaline matter to have had a decided influence upon the crops growing on two or three acres of land, unless they were adulterated to an inordinate degree. In listening to a lecture on commercial fertilizers sometime last year, by Dr. J. R. NICHOLS, it is our impression that he spoke of a cargo of lime-ashes brought from Maine. The cost, if we remember correctly, he stated to be twenty-five cents per bushel in the vessel at Boston, and that upon an analysis only five per cent. of alkaline matter was found in them. This cannot be the case, we think, with lime-kiln ashes, as they may be gathered from the kiln. We have supposed the wood ashes and the refuse lime mingled with them, to have considerable value as fertilizing agents.

It would be hardly advisable to seek a new compound for the seaweed, when it proved so successful with the one already tried.

From a pretty thorough examination of the properties of seaweed, and the modes of using it in this country and abroad, we are inclined to think that it will prove most valuable to the soil when ploughed under immediately after it is gathered.

Among some of our agricultural friends residing near the sea coast in Essex county, it is a common practice to place it in heaps and allow it to ferment before it is used. Others strew it on the cattle yards, in the pig styes, or wherever it will be likely to be broken up. Those who have examined the matter with care, state that this is wholly unnecessary, for there is no fibrous matter rendered soluble in the process, and a part of the manure is lost. The best cultivators use it as fresh as it can be procured; and the practical results of this mode of applying it are exactly conformable to the theory of its operation. It seems that the carbonic acid formed by its incipient fermentation must be partly dissolved by the water set free in the same process; and thus become capable of absorption by the roots of plants. The effects of the seaweed as manure, must principally depend upon this carbonic acid, and upon the soluble mucilage the weed contains.

From what we can learn about seaweed, it appears that its valuable qualities consist largely of mucilaginous matter, and it is supposed that some of this substance is destroyed by the process of fermentation.

In some experiments in England, where seaweeds were subjected to an analysis, no ammonia was found; the ashes contained sea salt, carbonate of soda and carbonaceous matter. Digesting the weed in boiling water, one-eighth of a gelatinous substance was obtained.

When ploughed under the sod, seaweed was found to be a powerful fertilizer, but transient in its effects, and did not last for more than a single crop, which was accounted for from the large quantity of water, or the elements of water, which it contains.

It is stated by NORTON, in his Elements of Scientific Agriculture, that seaweed is usually ploughed in green, or applied as compost. In either case it decays very rapidly, unless extremely dry, and produces most of its effects upon the first crop. Many of the seaweeds contain much nitrogen; and this, while it adds greatly to their value as manures, increases the rapidity with which they decompose.

Upon the whole, then, it seems to us that the cheapest and best way would be to plough the seaweed under in its fresh state, sow the ashes broadcast upon the soil, and compost the stable manure with the old muck. Much cost would be saved in manipulating, by disposing of the seaweed and ashes at one handling, and the muck would oper-

ate as an absorbent and divisor in the stable manure. The latter may be used broadcast in the hill, or as a top-dressing.

A NEW CANKER WORM.—HYBERNIA TILIARIA.

I send you a specimen of an insect which I find ascending my apple trees with the canker worm moth. The male moth is yellowish, the female is wingless, and as you will see is very different in form and appearance from the female of the canker worm moth. What is it? The canker worm moths run unusually early this year, and are very numerous and apparently vigorous.

SHERMAN D. FLETCHER.

Westford, Mass., Nov. 1, 1871.

REMARKS.—The insect received corresponds exactly with the description in Prof. Harris' Treatise on Insects, of a species allied to the canker worm. He says:—

Apple, elm, and lime trees, are sometimes injured a good deal by another kind of span-worm, larger than the canker-worm, and very different from it in appearance. It is of a bright yellow color, with ten crinkled black lines along the top of the back; the head is rust-colored; the belly is paler than the rest of the body. When fully grown, it measures about one inch and a quarter in length. It often rests with the middle of the body curved upwards a little, and sometimes even without the support of its fore legs. The leaves of the lime seem to be its natural and favorite food, for it may be found on this tree every year; but I have often seen it in considerable abundance, with common canker-worms, on other trees. It is hatched rather later, and does not leave the trees quite so soon as the latter. About or soon after the middle of June it spins down from the trees, goes into the ground, and changes to a chrysalis in a little cell five or six inches below the surface; and from this it comes out in the moth state towards the end of October or during the month of November. More rarely its last transformation is retarded till the spring. The females are wingless and grub-like, with slender thread-shaped antennæ. As soon as they leave the ground they creep up the trees, and lay their eggs in little clusters, here and there on the branches. The males have large and delicate wings, and their antennæ have a narrow feathery edging on each side. They follow the females, and pair with them on the trees. This kind of moth closely resembles the lime-looper or umber moth (*Hybernia defoliaria*) of Europe; but differs from it so much in the larva state, that I have not the slightest doubt of its being a distinct species, and accordingly name it *Hybernia Tiliaria*, the lime-tree winter-moth, from *Tilia*, the scientific name of its favorite tree. The fore wings of the male are rusty buff or nankin-yellow, sprinkled with very fine brownish dots, and banded with two transverse, wavy, brown lines, the band nearest the shoulders being often indistinct; in the space between the bands, and near to the thick edge of the wing, there is generally a brown dot. The hind wings are much paler than the others, and have a small brownish dot in the middle. The color of the body is the same as that of the fore wings; and the legs are ringed with buff and brown. The wings expand one inch and three-quarters. The body of the female is grayish or yellowish white; it is sprinkled on the sides with black dots, and there are two square black spots on the top of each ring, except the last, which has only one spot. The front of the head is black; and the antennæ and the legs are ringed with black and white. The tail is tipped with a tapering, jointed egg-tube, that can be drawn in and out, like the joints of a telescope. Exclusive of this tube, the female measures about half an inch in length. The eggs are beautiful objects when seen under a microscope. They are of an oval shape, and pale yellow color, and are covered with little raised lines, like net-work, or like the cells of a honeycomb.

As these span-worms appear at the same time as canker-worms, resemble them in their habits, and often live on the same trees, they can be kept in check by such means as are found useful when employed against canker-worms.

CATTLE AT LOW PRICES IN MAINE.

We often hear in this locality that cows can be had for $10 to $12; yearlings, from $6 to $8; good oxen $60 to $70; other cattle in proportion, in Maine. If that is so, I wish to buy twenty cows, and some of my townsmen wish to buy other stock. We do not like to start off on such business at random, and would be obliged for information as to the localities at which stock can be purchased at such prices.

T. J. BAKER.

Johnson, Vt., Oct. 23, 1871.

REMARKS.—About the time that farmers in Maine were finishing up their haying and wondering how they should make the unusually small crop suffice to carry their stock through the long winter season, their cattle were driven by drought and grasshoppers from their pastures and came up to the barn asking to be fed from the scanty amount of hay that had been secured. Drovers had not then commenced their usual fall purchases. Reports from Brighton market represented prices for beef cattle as rapidly declining, and, in consequence of the short crop of hay and its consequent high price elsewhere, there was little demand for store cattle in any section. Under these circumstances it is not strange that there should have been an alarm and excitement in which cattle were sold at low prices, nor that reports of cattle being offered at still lower prices than were actually accepted should have obtained currency. But as droves were started off and buyers entered into competition with each other, farmers regained confidence and prices soon improved, so that were you to enter the field now as a buyer you would probably find that you were too late to secure animals at the prices you have named, unless you were willing to take those of an inferior quality. The prices reported at Brighton from week to week, with cost of freight, &c., deducted, may be taken as a near approximation to what you would have to pay in

Maine. Oxen are sold at $60 to $70 per pair, it is true; and they are also sold at $100 to $200, and you will see one pair reported recently at $250, and the presumption is that at these prices the drovers did not realize an extravagant "drift." Yearlings might probably be had at the prices you name. But cows at $10 to $12 per head would probably rank with the "lean kine." Good new milch cows are sold from $50 to $85, at retail, in Brighton.

If you wish for more definite information, perhaps you might obtain it by addressing some of the drovers in Maine, many of whom have buyers in different counties. Of the few whose address we remember we may give that of Gideon Wells, Pishon's Ferry, Kennebec county; W. W. Hall, East Dixfield, Oxford county; J. L. Prescott, Farmington, Franklin county; T. J. Savage, East Madison, Somerset county; I. Tozier, East Corinth, Penobscot county; A. H. Clark, Unity, Waldo county.

SALT FOR CATTLE.

Some time since one of your correspondents said he believed salt was injurious to cattle. As it is sometimes fed, I think it may be injurious to them. He remarked that he kept salt in a trough for his cattle most of the time. If put in a trough for them at all it should be kept there constantly. The ox that he supposed died from eating too much salt had probably been without any for a long time, and having a ravenous appetite, ate so much as to cause inflammation of the stomach and bowels, which resulted in death.

A few years since I heard of a similar case. A man kept salt for his stock in a tight trough. A rain dissolved the salt, and his cattle drank the brine, and two died in consequence, as was supposed, of taking so much of the brine. I should consider it risky to leave enough salt at one time for a whole week or longer, under such circumstances. Different animals have different appetites for salt. Some appear to care little for it, others are greedy and ravenous. If my cattle have been some time without salt I take a stick to keep them from me as I deal it out. I have fed salt to my cattle for forty years, but have never been as regular in doing so as some farmers are, because my belief has been that it did but little good or hurt, being a sort of luxury. I generally throw down about a handful to each animal, and usually remain till most of it is eaten.

I once had a pasture some distance from home where I kept a lot of young cattle. When I went to salt them they would come up to me as fast as they could run, on being called. This proves that they love salt whether it does them any good or not. As already remarked I have never been regular in feeding salt,—sometimes giving it weekly, sometimes once in three or more weeks. Last winter I did not feed it more than two or three times during the season, and I never had my cattle do better. Still as they seem to want salt, I like to see them eat it. I never had an animal sick for want of salt, or from eating too much of it, so far as I know.

A dairy woman remarked to me not long since that she could tell when the cows had been salted by the increased flow of milk. But as long as I have kept cows, and as closely as I have watched their yield of milk I have never witnessed such result. I suppose salt will kill hens if they eat too much of it, and I do not know why it should not have a similar effect on cattle. For the human family, salt alone is not desirable, but we could not well do without it as a seasoning for our food. Everything is good and beautiful in its place and season; for which let us be thankful to the giver of all good, and endeavor to use them as he intended we should. M. L. GOODELL.

South Amherst, Mass., 1871.

BONE DISEASE.

Your correspondent, Mr. Fisher, in speaking of the bone disease, alludes to the habit of chewing bones, sticks and old pieces of leather, as symptoms of the disease. Having never seen a case of the kind of disease to which he alludes; in fact, having been rather sceptical about its existence, other than in the imagination of some people,—I have supposed it to be something like the horn ail, or loss of the cud, only a symptom of some other disease, and not a disease of itself.

The habit cattle have of chewing bones may be an indication of it in Mr. Fisher's case, but in other sections it is not. In some parts of New Hampshire near the White Mountains it is considered as an indication of the "Burton ail," the remedy for which is rye meal. I believe the cause of the bone disease has been attributed to the want of lime in the soil upon which the cattle are kept. Now the most inveterate bone chewers I have ever known were in the limestone region of Newbury, in this State, where stock is wintered mostly on salt hay. Whether that has anything to do with the habit, I do not know. I am now located on a farm that has been used as a milk farm for nearly or quite a century, and though there is no lime stone here, yet I have never heard that the disease was ever known here, and in the ten years that I have been here I have never seen an instance of bone chewing. Cows taken from a Newbury farm twenty miles distant and brought here have never been seen to indulge in it.

It seems to be a morbid appetite which induces cows—I don't recollect of ever seeing an ox indulge the pastime of bone chewing—to sometimes resort to strange and we should think offensive things to supply a craving for something they do not get in the usual course of feeding. For instance, I have had cows that would pass good clear water on their way to the barn to drink their fill of the nasty green water that stood in the barn yard.

Mr. Fisher's description of the disease would hardly indicate an affection of the bone, as he says the muscles seem to be affected. The remedy, too, would not seem to be potent enough to eradicate a disease of the bone, as I suppose the medical qualities of the soap is contained in the alkali. I wish Mr. F. had told us what is the final termination of the disease, as he thinks that the soap would not cure a case of long standing. In fine, it is so hard to locate disease in the limbs of animals, unless there is an enlargement of the parts, that I am rather doubtful about the bone disease, as I never heard of the caries of a bone in a dumb beast.

Peabody, Oct. 31, 1871. J. L. HUBBARD.

DEODORIZING SKUNK SKINS.

Will you, or some of the readers of the FARMER, tell me a *sure* process whereby skunk skins may be deodorized, and thereby rendered fit for use? I hope no one will pass this by, thinking it unworthy of notice, but rather, if they know of a method, will give it, thereby obliging *one*, if not more readers of the "FARMER." "READER."

REMARKS.—Among all the animals figured and colored to life, in Audubon's splendid work on the "Quadrupeds of North America," no one is more beautiful than the Texan skunk. The whole of the long hair, including the under fur on the back,

and the tail on both surfaces, is white. This broad stripe commences on the forehead about two inches from the point of the nose, running near the ears, and in a straight line along the sides and over the haunches, taking in the whole of the tail. The nails are white; the whole of the under surface of the body black, with here and there a white hair interspersed.

This Texan variety is more beautiful than those found in New England, but the latter are very handsome when seen in their native haunts. At some seasons the hair is long and thick, and the fur beneath quite fine and soft. The skins are purchased by furriers and are used in many forms of work.

How they can be thoroughly divested of the odor which is sometimes imparted to them, we do not know. Burying the skins in a moist loam in the garden, for three or four days and then taking them out and exposing them to the air for a day or two, and then burying them again, and so changing for a few times, we should think would accomplish the purpose desired, and not injure the skin.

If they are *instantly* killed, there would be no offensive odor in the skin. This may be sometimes done by shooting them and hitting the brain. If in a hole like that of a wood-chuck, they may be drowned out by collecting a considerable quantity of water in tubs, and turning it in at once. The moment they appear at the mouth of the hole a rap between the eyes will destroy all sensation, and there will be no odor. We have seen this done. Perhaps some reader of the FARMER may be able to answer the question of our correspondent.

CHEMICAL REASONS FOR SAVING LIQUID MANURE.

Much has been said about the saving of liquid from the barn or stable. But there is no doubt that many of your readers do not understand the chemical reasons why the liquids should be saved.

Chemistry tells us that ammonia is one of the most active elements of manure; it is produced by putrifaction of all organic substances containing nitrogen, and as it is highly volatile, it constantly tends to escape into the air, where it is lost. The fluid excretions of animals evolve it in large quantities. If these are collected in tanks, and sulphuric acid added, fixed sulphate of ammonia is formed in the liquid, and all the ammonia is thus saved for farm use. Sulphate of lime, (plaster,) and sulphate of iron also serve to fix ammonia.

The application of ammonia increases luxuriance of vegetation. It enters the roots of plants dissolved in water, and, according to Liebig, is absorbed by the leaves from the air.

I am a reader of the FARMER and hope sometime to be a farmer myself, but am at present

A YOUNG STUDENT OF CHEMISTRY.

Boston, Mass., Nov. 7, 1871.

EXPERIMENTS WITH SUPERPHOSPHATES.

According to promise I will now write you the results of my experiments with five kinds of superphosphate of lime in comparison with ashes, with plaster and with nothing.

In the first place, I planted one and one-half acres of pop corn. There were thirty-two rows; six rows of each of the phosphates, and one row of ashes, and one row of nothing. The land was sandy loam, with no perceptible difference in the quality. I gave it the same care, and this is the result.

Wilson's Ammo'd Phosphate	6	rows produced	5½	bu.
Bay State Bone . . .	6	"	8½	"
E. Frank Coe's . . .	6	"	10½	"
Bradley's	6	"	13½	"
Cumberland	6	"	13¾	"
Ashes	1	"	3	"
Nothing	1	"	1¾	"

I could see no difference through the whole season between the Cumberland and Bradley's, but the Wilson's was a failure from the first. The Bay State bone started the best but did not hold out till the end. The ashes were made from a mixture of pine and hard wood, the greater part pine.

I also tried potatoes the same way, only I took three rows with each of the phosphates, an each with ashes, plaster and no fertilizer, with the following results:—

Nothing	6 bu.	Bay State Bone .	9 bu.
Plaster	8½ "	E. F. Coe's	7 "
Ashes	9 "	Bradley's	8 "
Wilson	6¾ "	Cumberland . . .	9½ "

Of the potatoes, those on the Bay State Bone were the largest in size; those on the Wilson's were the smallest; those on the Cumberland were the most even in size; those on the ashes showed the least rot, and those on the plaster were the whitest. There were less small ones where there was nothing than on the Wilson's Phosphate, though there were three pecks more in the whole of the latter.

The land on which these crops grew was an old field badly run out and no other kind of manure was used. The cultivation was the same on the whole, and every effort was used to give a fair and impartial trial. I give the results, and readers can judge for themselves.

H. W. LORING.

Lewiston, Me., Oct. 30, 1871.

RYE FOR MILCH COWS BEFORE CALVING.—George C. Kirtland writes the *Rural New Yorker*, recommending that for each cow to calve the herdsman should procure a half bushel of rye, grind it if convenient, and commence, two weeks before calving, to feed a single handful of meal upon which a gallon or more of boiling water has been poured. Feed when cold, increasing the amount both of meal and water, so as that the cow shall have consumed the half bushel of rye about the time of calving. If the rye is not ground, boil it until the grains will mash easily between the thumb or finger. Mr. Kirtland has practiced the above treatment for about fifteen years, and has had no ills to cure in his cows after calving.

DESTROYING WORMS IN POTS.—The worms in pots may be destroyed by stopping up the holes in the pots with corks, and watering with lime-water until it stands on the surface. The lime-water may remain for an hour; then, on removing the cork it will pass off. The lime-water may be made by pouring thirty gallons of water over ten pounds of fresh lime. Stir well up, and allow the whole to stand two or three days; then employ the clear liquid.—*Journal of Horticulture.*

NEW HAMPSHIRE.

At the autumn meeting of the Board of Agriculture of New Hampshire at Concord, October 17, arrangements were made for holding at least one farmers' meeting in each county of the State during the coming winter, for the discussion of agricultural subjects.

The first meeting was appointed at the Agricultural College, Hanover, on the 14th and 15th of November. But we learn from the *Mirror and Farmer* that Prof. Dimond requests that the meeting there should be postponed until January or February.

It was proposed to hold the next meeting at Concord on the 16th and 17th of December. The following places have been selected for other meetings, and the times will be as near the dates here named as practicable: At Tilton, Dec. 5th and 6th; Moultonboro', Dec. 6th and 7th; Conway, Dec. 19th; Rochester, Dec. 20th; Durham, Dec. 21st; Walpole and Fitzwilliam, first week in January; Littleton and Lancaster, the third week; Hillsboro' Bridge, the last week in January; Newport and Claremont, the first week in February; Epping and Exeter, about the middle of February; and at Manchester, at a time to be arranged by a special committee appointed by the Board, and a similar committee of the State Society.

Some one member or more of the Board will be present at each of these meetings, and at some of them the full Board will be present.

We have also received a copy of a circular signed by James O. Adams, Esq., Secretary of the Board, addressed—not to the farmers of New Hampshire, but—to "The Friends of Agriculture." Would the secretary of an association of blacksmiths who desired to collect statistics of the craft and information as to the condition of the craftsmen address his circulars to *the friends* of blacksmithing? Would not every blacksmith feel himself personally slighted by such an address? And should we be surprised that the secretary had cause to regret the neglect of his correspondents to respond to his inquiries?

The difference between these forms of expression may at first sight appear too small for serious criticism. And so perhaps might the difference between the various conversations that the mother bird in Æsop's fable listened to. But so long as the owner of that field talked about getting the assistance of his "friends" to harvest it, she told her nestlings they might lie still and slumber; but when he decided to take hold of the work himself she told them it was time to move.

And until farmers themselves shall co-operate with Boards and Societies, we have little hope that much will be accomplished by all the "friends of agriculture" in the country, or by the multitude, however numerous, "who are interested in the success of the farm."

Though objecting to what we consider unfortunate expressions in the circular, we believe the Board desires to secure the counsel and co-operation of all cultivators of the soil in the Granite State, and most sincerely hope that the proposed meetings in various parts of the State will prove to be assemblages not only of officials and those "interested in agriculture," but of those who are practically engaged, heart and hand, in farming.

Mr. Adams solicits information in regard to crops, the weather, insects, farmers' clubs, prosperity of farmers, &c. He furnishes a form for a farmers' club constitution, and says, "we feel it to be a matter of great importance to the farmers to sustain clubs in all the towns of the State, for the purpose of discussing their material interests, holding local fairs, and protecting themselves against the tricks of 'sharpers,' or imposters in various departments of trade."

—John Buckman, of Winslow, Me., raised twenty-eight bushels of wheat on three-quarters of an acre of old pasture land broken up a year ago last spring, planted with corn, manured in the hill with plaster and ashes, and sowed with five pecks of wheat, about the 15th of last September. The wheat was sold for $70 for seed, and the straw, $32 cwt. for $17 60.

DOWN EAST WOOL.—The Augusta *Journal* says that a shipment of fleece wool from Aroostook county has just been received in Hallowell. It was bought principally in Presque Isle, and was carted to Mattawamkeag, a distance of one hundred miles, and thence came by railroad. After adding all expenses the wool does not cost quite as much as the same quality bought here. It is a long staple, and is used in the manufacture of delaines. It is nearly all "tub-washed," and is the second shipment received in Hallowell this season.

For the New England Farmer.

ADVICE FROM AN OLD FARMER.

I am now more than four score years old, but my interest in the improvement of agriculture increases with my years. I thought I would give you some of my experience in farming,—if you think it worth laying before your readers, you are at liberty to do so. I hope it will be the means of inducing others to stick by the homestead with a determination to improve it and take care of their parents. I have not a doubt that they will succeed if their desire to be useful is stronger than mere money-getting.

My father gave up the management of the farm to me when I was twenty years old. It had been managed as was usual in this neighborhood at that time. He was always complaining that he had the poorest farm in the neighborhood. I determined to improve it as fast as I could get the means. Upon the death of my parents, my brothers and sisters

had the largest half of the farm. I then began to improve by manuring higher and trying to keep the weeds down, and have succeeded so far that I do not allow one to go to seed if I can help it. I think one day spent in keeping weeds from going to seed this year, will save four days in killing weeds hereafter. I would advise all old and young not to be so bound to their old practices as not to be willing to try new improvements. I have changed my system of management more within ten years than I did in fifty years before. I hire my help by the year, and find it will not pay to cultivate more land than I can manure and tend well and get in order to bear a good crop of grass when I put it down. The greater part of the land that used to be occupied as pasturing, is very ledgy, and pine wood grows spontaneously upon it. I think it more profitable to let it grow, for I believe it would be a benefit to the public if we let more of our land grow to forest trees, and what we keep for grass and cultivation manure well and keep the weeds down.

I keep five cows, two oxen and one horse. The oxen and horse are kept in the barn when not at work. The oxen fed chiefly on salt hay; the cows are fed well with green fodder night and morning. I raise clover to feed the cows, beginning to cut about the 10th of June. The second crop comes on and lasts until we have plenty of corn fodder.

I like to read your reports of great farms and men of great abilities to manage them. I hope my experience will encourage those of small means to persevere, for we of small means may be just as useful members of society if we improve what talents we have, and should be equally respected.

I think I have all the enjoyment of the present life I can have while I remain in this poor old worn out body. I am trying to solve the labor and capital problem according to my ideas of right. I wish my hired help to feel themselves my equals in every respect. I need their labor as much as they do my money.

THOMAS HASKELL.

West Gloucester, Mass., Sept. 19, 1871.

—Rhode Island has not raised apples enough this year to make the usual number of pies; while Michigan cannot find barrels enough to hold her crop, and is selling at $1.00.

DWARF PEAR TREES.

A few years ago there was a great excitement about pear trees on quince stocks, and shiploads of dried-up looking things were imported from France and sold here by wholesale and retail. As usual in such cases, the fever was followed by a chill, and now but little is seen or heard of French dwarf pears; perhaps not as much as their peculiar merits deserve. For general culture the pear stock is undoubtedly the best. But the small amount

of space required by a dwarf pear tree and its early bearing, are advantages which warrant the planting of a few in the garden, as curiosities and pets as well as for the fruit they may yield. Our cut is designed rather to illustrate the theoretical than the practical, as a tree that should be allowed to produce the amount of fruit represented would be likely to exhaust its powers if not its vitality. The best cultivators thin out the fruit severely, and find that a few nice specimens will sell for more money than a much larger amount of inferior fruit.

For the New England Farmer.

PORK-MAKING IN MASSACHUSETTS.

In the FARMER of July 15, friend Fisher, of Franklin, refers to a statement of mine in regard to feeding and selling pork. He says he quotes from memory and the language may not be quite correct, but the idea is given. The article to which he referred is in the FARMER of June 3, where I said that, "I find it impossible to keep exact accounts with dairy stock. I can buy a pig for $10, feed him $10 worth of meal and sell him for $25, and know that I have made a profit of $5, allowing the value of the manure to be equal to the cost of labor of taking care of him."

Now I must say to your Franklin correspondent that I was not intending to discuss the profits of pork-making at all; but only used those figures to show how much more difficult it is to keep a correct account with a dairy than with a pig, because an account with a pig can be commenced, and finished up in a few months,—while an account with dairy stock must run through several years, and *estimates* must be made of the value of the animals at different times, instead of prices found by actual purchases and sales.

However, as hogs are now the subject of discussion I will say that I do not think my figures were very extravagant in allowing a profit of five dollars on an animal. By referring back to old accounts with my swine, I find even better returns than that.

One year I bought, April 3, two pigs, weighing 43 1-2 pounds each, for $5 a piece, or $10, and fed grain to the value of $15.88. Oct. 28, sold 632 pounds of pork at 6 cents per pound, wholesale, amounting to $37.92; giving a gain of $6.02 on each hog. The meal averaged that year $1.33 per bag of 100 pounds.

The last few years I have sold my pork at retail and have done better with it,—saving to myself the profits that would have gone to the "middle men." As Mr. Fisher says, I am a butter-maker, and feed sour milk to my pigs. He sells his milk, and of course has to buy most if not all he feeds to his swine. If I were selling my milk I would keep very few if any hogs. Certainly no more than enough to supply the family demand.

Having plenty of skimmed milk through the warm months, I have considered I was getting something for it when fed to pigs. I think, however, that farmers generally place too high a money value on a quart of milk for hog feed. One of the best experiments I ever made did not pay over two-thirds of a cent a quart for the milk fed to a pair of hogs during their whole growth. The younger the pigs the more the milk is worth. For this reason I have always endeavored to buy very young pigs and grow them myself in preference to buying shoats; and for the last two or three years I have kept no hogs during the winter, because I could sell all my milk during the cold weather for family uses. Last spring the prospects looked so unfavorable for pork-making, I was tempted to pour my milk directly on the manure heap and thus save the labor and care of feeding hogs.

Old habits are strong. I am not certain as I could ever make up my mind to use sweet Indian meal as a manure, as some of the Western Massachusetts farmers are said to have done with profit. It *ought* to be worth more as food than as a fertilizer; and so good, sweet or sour milk, after taking off the cream, *ought* to be worth more as food for either man or beast than as a fertilizer. So I bought three pigs the first day of last April. Small pigs were scarce and high. Six weeks old suckers brought $6 a piece, even if they would not weigh more than 25 pounds each. I had at that time milk enough to have fed a dozen of that size for a few weeks. I concluded to buy three larger ones instead, that weighed 75 lbs. each at $10 apiece.

And now I can tell brother Fisher just how profitable pork-making has been to me this year. Supposing I sell at wholesale prices for round hogs, the account would stand thus:—

April 1—To 3 shoats, at 75 lbs each	$30 00	
58 lbs. meal, at 77 20-58c . . .	44 86	
263 lbs. shorts	5 04	
		79 90
Oct. 19—By 3 hogs, wt. 308 lbs each, @7½c.		69 30
Loss		$10 60

The highest price I have heard of any hogs being sold this fall is 7 1-2c. per lb., and I have dressed one of mine and it weighed as above. I could not through the whole time of feeding tell one from another, and I have been perfectly satisfied with their growth. Perhaps others, by using cooked food, could have done better.

Every one knows that the past season has been a losing one for all pork-makers, unless it is made from what would have been wasted if it had not been fed. But if one believes in pork-raising, he must not give it up because of one poor season. There is every reason to believe prices will be more satisfactory before another crop of pork comes on the market.

I do not, however, believe in pork-raising

here in Norfolk county as a paying business, only so far as it works up materials that would otherwise be wasted. One of my village friends told me this week that he had for many years grown his own pork in preference to buying it, on account of the better quality, but that he had never fatted but one hog that did not cost him more than it would bring in market, and that only gave a profit of a few cents. I hope your Franklin correspondent will accept this explanation, and excuse my delay in answering his question, as I wished to give him and your readers a correct report of the *profits* of making pork this year. A. W. CHEEVER.

Sheldonville, Mass., Oct. 21, 1871.

For the New England Farmer.

WEEDS.

The organism which plants have in common with animals is not the only point of resemblance between the two; for in their natural tastes, qualities and habits, there seems to be a similarity, so that certain plants, like certain persons, suggest to us the idea of modesty, contentment, persistence, boldness and the like; and it is some such special tendency that gives to plants more or less prominence as pernicious weeds in cultivated grounds.

There are many, that with the most favorable circumstances, would never become really injurious, while others seem to improve the slightest opportunity to obtain a "citzenship."

Among the specimens of this description, perhaps the one best known in New England, is the white weed, (*Leucanthemum vulgare,*) though in some localities there are others equally persevering; for instance, the yellow broom, (*Genista tinctoria,*) at Danvers, that from a single root brought by a true-hearted Scotchman, as a memento of his native hills, now covers whole fields to the exclusion of grasses and useful plants.

The St. John's-wort in some soils inclines to supplant other vegetion. The toad flax, (*Linaria vulgaris,*) too, intrudes itself about our gardens and the borders of fields.

The wild carrot, *(Daucus Carota,)* also is making rapid incursions where a few years ago it was unknown. Another "immigrant" is the purple cone flower, (*Rudbeckia hirta,*) which was undoubtedly introduced in grass seed brought from the West, where this plant is an old inhabitant.

There are many others, less showy but equally pernicious, such as the Roman wormwood the fleabane, the pigweed, the princess' feather, smart weed, and purslain; this last covers the ground with astonishing rapidity and is very exhaustive to our gardens.

Now I would not have this class of vegetable exterminated entirely, they have their place in the world, and like the passions and appetites of humanity if they are servants and not masters, they are a blessing instead of a curse. I would allow these hardy "self-reliants" to beautify our country road-sides and waste places, but if every farmer would promptly oppose their first appearance in his cultivated grounds, *they* would find their true position, and *he* would be saved great trouble in the future. H.

Georgetown, Mass., Sept. 23, 1871.

REMARKS. — The spread of a single root of the "yellow broom," mentioned by our correspondent, is sufficient, we think, to caution farmers against allowing pernicious weeds a foothold in our country roads and waste places. The sides of the highway through the farm will furnish seed enough to plant a whole neighborhood.

For the New England Farmer.

FALL PLOUGHING.

BY EMORY A. ELLSWORTH.

While the autumn days are growing shorter and shorter and another month is drawing swiftly to its close, the farmer must likewise finish his work, as each day is bringing him one step nearer that time when winter will cut short all his out-door operations.

The potatoes have been dug; those who have been blessed above their neighbors, in having apples, have gathered them; the mangolds and rutabagas will soon be harvested, and the corn is ready for the husking; but in all the haste which swiftly shortening days and the near approach of winter brings upon the farmer, the fall ploughing must not be neglected.

Geologists tell us that the entire surface of the earth was originally covered with a solid crust of rock, and from this, by decomposition, our soil has been formed. The principle, therefore, that the finer the particles which compose the soil are broken up the more fertile the soil becomes, follows directly, and is based upon this geological fact.

Nature is always ready to aid man when he will act in accordance with her laws, and especially is her help required in thoroughly pulverizing the soil. The same processes by which it was originally formed can always be used to improve it.

The principal pulverizing agents are,—1. The action of frost; 2. The action of water, and 3. The chemical changes of the constituents of the rock.

In order to hasten this decomposition, as well as to render the soil more porous and mellow, men have resorted to different methods of mechanically pulverizing it; among the more important and universal of which is that of ploughing. If, therefore, this mechanical method is so applied that these agents are aided and hastened in the accomplishment of their work, much more beneficial results may be expected.

Ploughing in the fall, therefore, expecially for heavy lands, is the best means for securing the action of the frosts of winter and the rains of spring to decompose and disintegrate the particles of the soil. I have heard individuals say, however, that they would not have their lands ploughed at this time for the reason that, when the ground is not covered with snow, a great deal of the soil is carried away by winds; but from a long experience it has been found that lands ploughed in the fall, especially if the manure is put on, can be worked much earlier in the spring, besides being in a much better mechanical condition than when turned over and immediately planted. For this reason alone, if not for other advantages, many farmers would find it very much to their convenience to adopt it, since in many portions of New England, farmers find it almost impossible to get their corn planted early enough to have it well ripened before the early frosts attack it.

Another advantage of some importance is, that our teams are in a much better condition to do this work now than in the spring when the warm weather is coming on. They have been in the barn all winter, and when taken out to work it requires some time and exercise to recover their full strength, while it is always a noticeable fact that they feel this work much more then than now.

Weeds are more easily and completely kept under control, also, when the land is turned over in the fall, and where farmers are so unfortunate as to have witch grass, (*Triticum repens*), in their land, they will find that it can be considerably backened and subdued by turning up the roots to the action of the winter's frost. It would be well when this troublesome pest abounds, to plough two or three times in the fall as well as to harrow it. Then, as soon as the ground becomes settled in the spring, plough and harrow every few days from the time it starts well until it is completely subdued. If it requires a whole summer, the land will be enough richer and better broken up to pay the farmer for his work, while the weeds can be effectually subdued by this process.

And, finally, when we consider that by ploughing in the fall we are aided in our efforts by those forces of nature to which we owe all our soil, and by whose action the soil is constantly made more and more fertile; that much time is saved, in that we can commence operations much ealier in the spring upon our lands when thus treated; that our teams are better prepared to perform this work now than in the spring; that many weeds,—the worst enemies of the farmer,—can be effectually got rid of by it,—is not fall ploughing worthy your trial and adoption as one of the improvements in the cultivation of the soil.

Maplewood Farm,
Barre, Mass., Oct. 16, 1871.

ADULTERATION IN BUTTER.

Thousands of pounds of butter are daily sold in the city of New York, which are adulterated with a substance made from cotton-seed oil. It is creditable to the farmers, as a class, that they are not open to the charge of adulterating their produce; yet they suffer from the dishonest competition of dealers who make up and sell these fraudulent compounds, and by so doing affect unfavorably not only the sale but the character of the genuine article. As a matter of curiosity we describe an artificial compound which was manufactured in Paris to supply the want of real butter during the late siege. The refuse materials left after the manufacture of stearine from fatty animal matters, such as tallow, &c., consisting of an oily paste, composed of oleine and margarine, were washed in water acidulated with muriatic acid for the purpose of bleaching it. It was then subjected to the action of a chemical solution for a period of three hours, during which it was made to acquire the taste and color of butter. This substance, manufactured without any assistance from the cows, was considered an excellent substitute for butter, and was readily accepted in place of it by the people, who considered it much superior to any other artificial product of this description.—*Scientific American.*

CORN FODDER.

The opinion we have always held upon the question of the value of green corn fodder for milch cows has been, that when raised from broadcast sowing it is nearly worthless, but when sown in hills or in drills, and cultivated, with access of air and sunlight, it is of high value.

During the present season we have made some experiments to test the correctness of these views. Stalks were collected from a field where the seed was sown broadcast, and also stalks growing in drills upon the same field, and they were dried in a drying closet to expel the moisture. Both specimens were planted at the same time (the 6th of May), and it was found that the plants from the broadcast sowing contained 92 per cent. of water, those from drills 83 per cent. of water. Thus it was shown that the difference of solid matter in the two was relatively as 8 to 17 per cent. The solid matter was composed of starch, gum, sugar, and woody fibre. There was almost an entire absence of sugar and gum in the stalks from the broadcast sowing, while the stalks that had grown under the influence of light and air held these nutrient principles in considerable quantities. The stalks were collected at the period of growth just before the ear begins to form, a period when most farmers commence to cut the fodder for their cows.

Our experiments upon corn fodder have afforded us important information upon other points. We find that the stalks cut before they

reach a certain stage of growth are deficient in nutrient matter, and therefore it is a waste to feed them too early. The corn plant, like all other vegetable structures, has but one object or aim in its growth, and that is to produce seed. It is engaged during its whole life in storing up large quantities of starch, which is to be used when the pressing occasion arrives, or the seed vessels mature, to form by some subtle mysterious changes the rich nutrient principles which are found in seeds. As soon as this struggle is over, the corn plant, like all annuals, dies a natural death. It is not necessary for frost to strike it; it dies from simple exhaustion.

The proper time to cut and feed corn stalks is during the four or five weeks which succeed inflorescence, or in other words they should not be cut until the flower is fairly developed, and the ear commences to form; and any corn that is so planted that the ear cannot form and *mature* is *practically worthless as fodder.*

Farmers may learn from these facts that corn designed to be cut for fodder should be planted at two or three periods during the season; some fields quite early, others somewhat later, and still others as late as is safe. In this way, when the hot, dry months of July and August are reached, and the pastures falter, a supply of fodder is secured, at a proper stage of growth to afford the largest amount of nutriment.—*Boston Journal of Chemistry.*

PURE BREEDS.

It seldom occurs that topics of farm business afford a subject of conversation among the general public; yet this year the extreme prizes for thoroughbred stock have been continually remarked, even by those who know scarcely anything of cattle. One thousand five hundred guineas [about $7,500] for a six year old cow, and two thousand five hundred guineas for a pair of two year old heifers, may well cause surprise. These sums were actually paid, and with no luck penny, for pure short-horns bred by Mr. Booth and Captain Gunter. At Oxford and Yorkshire shows, other high sums were paid—the first prize yearling heifer sold for 500 guineas, and the second prize 350 guineas. Twelve guineas were paid for Leicester gimmers [that is, a female lamb, just weaned]. Cotswold command similar sums, and even pigs sold as high as thirty-five guineas each! But these prices, high as they seem, fall in the shade when 5800 guineas were paid for the thoroughbred Gladiateur.

It may be asked how such prices came about? Is there a scarcity of stock? or is the axiom of "fools and their money" found to be truer as it grows older?

Scarcity of animals of certain pedigrees there undoubtedly is, hence the rise in the market for animals of pure Bates and Booth tribes; but there is not such a scarcity of thoroughbred stock. The slaughter of continental cattle may have caused an increased price for graziers, and thus tempted farmers to breed more than to buy in and graze. Moreover, our agriculturists are every day becoming more enlightened as to the profits of improved stock, and selection in breeding the lower animals. Every huntsman knows the value of propagating certain qualities of scent and endurance in the kennel. Of how much more value, then, is it to the farmer to breed animals whose very management alone tends to benefit his business? In keeping stock, well bred cattle get done a little better than common things; it is a well known fact that animals fed well when young never lose their calf flesh. The better keeping leaves a richer and larger quantity of manure, which, in turn, prodnces better crops of grain and roots. Many men in our own district have long since known the benefit of this. The late Earl Ducie was one of the first to make it apparent to an eye witness, and the Royal Agricultural College still demonstrates it. But, argues the doubter, who can compete with a lord in buying pedigree stock at such prices? It don't pay. The late Mr. William Hewer, at Sevenhampton, for thirty years proved that well bred stock would pay. He bought large-framed pedigree cows, showing dairy properties, and put them to the best bull he could purchase. In this way he produced a class of cattle that would give their twenty-five quarts of milk a day, and when dry, feed in a short time to upwards of 150 stone. [In weighing animals a "stone" is 14 lbs., but varies in other articles.] The same way with his stock of B rkshire pigs, by judiciously selecting, and feeding them well when young, he brought out swine that won the first prize at the Royal shows for years in succession.—*Eng. Country Gentleman's Magazine.*

A POUND OF MILK.

The *Country Gentleman* says:—A correspondent who criticises the very excellent custom which has become almost or quite universal at butter and cheese factories, and is rapidly spreading elsewhere, of reckoning milk by the pound instead of by the gallon, is not aware of the origin of the custom, and is in error in basing his criticism upon the supposed fact that everybody "knows what is a quart of milk." There are several standards as regards measures of capacity, especially the wine gallon of 231 cubic inches and the beer gallon of 282 cubic inches. One of these is sometimes used and sometimes the other. In the early history of the factories, farmers were often induced to give beer gallons instead of wine gallon, because they wished the price per gallon to be nominally as large as possible; and the system of buying and selling by measure rapidly came into disfavor. A pound is a standard weight, and has the same meaning wherev-

er the English language is spoken. The bulk of a given quantity of milk, moreover, will vary with its temperature, and we have had occasional doubts whether the froth is not sometimes "counted in," when the number of quarts yielded is measured warm from the cow, for the information of the public. As to comparison of weights and measures it is common to regard a pint as a pound, but a careful correspondent of the *Country Gentleman* lately stated, as the result of numerous trials, that a quart of milk will average 2 1-5 pounds in weight, and when thoroughly cold, that he had found a quart to weigh nearly 2 1-4 (2.23) pounds.

ANALYSIS OF SOILS.

In a recent lecture on the subject of soils, Dr. Voelcker vigorously, and sensibly as he always is, opposed the belief that soil analysis alone can determine the kind and quality of fertilizer required for a given crop. To those knowing little of the teachings of modern agricultural science, it appears very simple to remedy a deficient soil by finding out through analysis the wanting constituents, and then to supply them. But this is not so. It is not only difficult to exactly analyze a soil, but many other things besides its chemical composition have to be observed. The state of combination in which the mineral constituents of a soil are found, its physical condition, the presence or absence of substances injurious to the growth of plants, are so many points of great importance upon which soil analysis casts a very dim and uncertain light. The fertility of the soil cannot be maintained, much less increased, if only as much of fertilizing constituents is applied to the land as was removed by the crop. Waste takes place in various directions, and one important source of this is through the process of drainage. Careful collection and examination of drainage waters has shown that a large proportion of nitrogen is carried off in this way, chiefly in the form of nitrates. Dr. Voelcker's analysis of drainage waters also shows that potash and phosphoric acid, both most important mineral constituents for the plant, are almost entirely retained in the soil; while others less important, such as lime, magnesia, or sulphuric acid, pass with greater readiness out of the land.

WINTER CARE OF PEARS.—Make a point of regularly examining every week all the choice kinds of fruits that may be approaching ripeness or which are found not to be keeping well, so that everything may be used at the proper time, for the finest pears are worthless enough if allowed to become overripe before being used, and the same is the case with many varieties of apples. Also look over the whole stock as often as time can be spared, removing any fruit that exhibits symptoms of decay, and put them aside for immediate use. Any of the choicer kinds of pears that do not ripen properly in the fruit room, should be removed to a warm, dry room for a few days. This will be found to greatly improve them. Keep the fruit as dry and cool as possible, and if the frost is excluded the fruit room can hardly be too cool when the object is to preserve the fruit plump and sound for a long time.

ON DRESSING HOGS.

Two years ago many hogs were partially or wholly lost, by becoming tainted after they were dressed, and before the meat cooled off. One instance came to our knowledge, where two fine hogs, each weighing 400 pounds, were injured by taint. They were dressed in quite a cool day, thoroughly cleaned and washed off with cold water. They were hung up under a shed, where a cool breeze blew over them, and yet the next morning there was a perceptable taint in the carcasses.

To prevent this the body should be split down the whole length by dividing the back bone. This will admit the air, allow the animal heat to escape, and keep the meat sweet.

Quite cold weather will not always prevent a taint. It did not in the case alluded to above. It is supposed by some that it is even safer to dress when the thermometer stands at about 40°. The reason given is, that when the weather is quite cold, the skin contracts and prevents the animal heat from escaping. Whether this is so or not, we do not know.

This, however, is quite certain,—that if the carcass is split down, there will be little or no danger of the meat becoming tainted; if it is not, there is danger; and it is so trifling a work to do it, that it is very poor economy to omit it.

In sending hogs to market, it would undoubtedly be more convenient to handle them whole, than if cut apart, and it may be safe enough to keep them whole in such hogs as are usually sent long distances, those weighing only from 200 to 300 pounds.

In the winter of 1868, we listened with much interest to a lecture by Prof. GAMGEE, of London, upon "*The Principles Involved in the Preservation of Meats*," before the State Board of Agriculture, at Amherst. In the course of his remarks he said:—

"Even in winter a lot of hogs may be killed in the evening, and whilst still warm packed in carts ready for delivery early next morning. The carcasses buried beneath others heat. The cold hogs remain intact, but the hams of the lower ones taint in pickle. Masses of frozen hams termed "green,"

in the trade,—that is, which have been a few days in salt,—are sent from the West to New York, are purchased by provision-dealers; they are tested, and apparently sound; but when spring-time comes and a thaw supervenes, large quantities of these hams turn. The salt has not penetrated. A putrefying centre has been surrounded by ice; all has remained stationary so long as the temperature has been low; but the instant heat supervenes, the process advances, and the entire hams turn sour."

This shows the very great importance of so managing as to allow all the heat to escape as soon as possible after the animal is dressed.

ORIGIN OF WOOLEN FACTORIES.

Though the clothing of our boyhood was all home-made, we have been so long familiar with the products of woolen factories in the form of cloths for ladies' and gentlemen's wear, of beautiful shawls, carpets, &c., which are now manufactured not only in New England but in nearly every State in the Union; and we have been so long accustomed to hear complaints from certain quarters about governmental favors to "rich corporations of lordly manufacturers," that we had almost forgotten the fact of the comparatively recent date of the introduction of the woolen factory into this country.

In a late number of the "Bulletin of the National Association of Wool Manufacturers," we find some extracts from a paper on the Introduction of the Woolen Manufacture into the United States, by Royal C. Taft, of the Rhode Island Society for the Promotion of Domestic Industry, which has not only refreshed our memory but added to our stock of knowledge on the subject.

There are many interesting particulars given, but we have space only for the concise summary of the writer of the article referred to, which is as follows:—

We have found in our investigation, that Mr. John Manning had land gratned him by the town of Ipswich upon which to build a woolen factory, in 1792, which grant was subsequently confirmed to him in 1795, when the factory had been erected. The work here done was all performed by hand, being no advance upon the method previously pursued.

That John and Arthur Scholfield came from England, in March, 1793, with a knowledge of the process of manufacturing woolen cloths, as pursued there; that they did during that year erect and put into operation a carding-machine at Byfield, Mass., which was the first one erected in this country; that in 1798, they built a factory at Montville, Conn., and furnished that with the improved machinery; also, that in 1800, Arthur Scholfield left his brother John, and removed to Pittsfield, where he erected the first carding-machine introduced to that section of the country, and followed the business of manufacturing woolen goods with such success that in 1804 his broadcloths, consigned to the New York market, were sold in successful competition with the imported article, while, in 1808, he had made such substantial progress as to be able to make and furnish the President of the United States, James Madison, with fine American black broadcloth, for his inaugural suit, this being the first (and perhaps the last) time that a President of the United States has been inaugurated in cloth of home manufacture; that he also pursued the business of building machinery; and that John Scholfield started his third and last enterprise in 1806, at Pawcatuck Bridge. Several factories were built soon after 1800; that of James Sanderson, at New Ipswich; of John Everett, at Mason Village, both in New Hampshire; and in Amherst, Hadley, and Worcester, Massachusetts.

The following from the Pittsfield, Mass., *Sun*, of Nov. 2, 1801, is supposed to be the first advertisement of a wool carding machine ever published in this country.

ARTHUR SCHOLFIELD respectfully informs the inhabitants of Pittsfield, and the neighboring towns that he has a carding-machine, half a mile west of the meeting-house, where they may have their wool carded into rolls for twelve and a half cents per pound; mixed, for fifteen and a half cents per pound. If they find the grease, and pick and grease it, it will be ten cents per pound, and twelve and a half cents mixed. They are requested to send their wool in sheets, as they will serve to bind up the rolls when done. Also, a small assortment of woolens for sale.

In 1805 the prices for carding were reduced to eight and twelve and a half cents a pound, and in 1806 Mr. Scholfield offered double carding machines for sale for $400, and picking machines for $30, which were rapidly set in operation in various parts of New England.

EXTRACTS AND REPLIES.

WHY DID CLOVER GROW WHERE BRUSH WAS BURNED?

Why does wood ashes cause clover to spring up where none has grown before? A few years ago I burned some brush that I had cut on the margin of the field. This brush I burned on a spot where nothing but spear grass had grown for a great many years. The next year there sprang up a splendid plot of clover where I burned the brush. Where did the seed come from? If it was in the ground, why did it not germinate before? C. H. W.

South Braintree, Mass., Oct., 1871.

REMARKS.—Are you prepared to defend the assertion made in your first question? Can you prove that clover had never grown on those spots where wood ashes caused it to spring up? If you can, you are able to do more than all the scientific men in the world have been able to do, and those who hold to the spontaneous production of plants will, we presume, be willing to pay you well for your trouble in settling in their favor a long disputed question.

The common opinion, we suppose to be, that clover, and other plants and trees that spring up under circumstances similar to the growth of your clover, come from seed in the ground, which is preserved there by some process of nature not well understood. From experiments that have been made, most kinds of seeds kept in the ordinary way lose vitality in from three to twelve years—a few kinds being found to grow after somewhat longer periods.

But most scientific men believe that seeds buried in the ground preserve their vitality for hundreds and even thousands of years.

Mr. Marsh, in his learned work entitled "Man and Nature," says the vitality of seeds "seems almost imperishable while they remain in the situation in which nature deposits them." He gives many instances in which one crop of plants had disappeared on a change of conditions, and another, of different nature, had promptly assumed its place, originating evidently from seeds preexisting for ages in the soil.

In a book entitled "Sketches of Creation," by Prof. Winchell, of the University of Michigan, recently published, there is a chapter on the vitality of buried vegetable germs, which fully corroborates the views expressed by Mr. Marsh. The writer alludes to the facts that on removing a pine forest, hard wood often succeeds, and *vice versa;* that earth thrown out of wells sends up a ready crop of weeds, and, not unfrequently, of species previously unknown; that on breaking up a sod of grass land, after any number of years, a crop of annual weeds will immediately resume possession; that a dressing of raw muck develops sorrel; and to a great many similar facts. He also cites the fact, as an authenticated one, that some well diggers in a town on the Penobscot river, in Maine, about forty miles from the sea, came, at the depth of about twenty feet, upon a stratum of sand. No such sand was to be found in the neighborhood, and none like it was known nearer than the sea, forty miles away. It was saved and piled up by itself and on the completion of the well it was spread about the spot on which it had been placed. As some peculiar plants soon showed themselves, they were protected out of curiosity, and on growing up they were ascertained to be beach-plum trees, and actually bore the beach-plum, which had never been seen except immediately upon the seashore. Now, geologists and other scientific men, suppose that the seeds from which these shrubs grew were deposited in this sand when that part of the State was the shore of the slowly receding sea; a period anterior perhaps to the creation of man.

Well known instances of the preservation of wood in water and swamps are cited as confirmatory of this theory of the long continued vitality of seeds. The piles that sustain the London Bridge are still comparatively sound, after having been driven five hundred years. Venice stands on piles that were driven in the seventh and eighth centuries—more than a thousand years ago. And in New Jersey are swamps filled with timber so valuable that it is "mined" for lumber. Prof. Cook, in his Geology of New Jersey, says, "the number of annual rings in the trunk of one of these buried trees, six feet in diameter, was one thousand and eighty; while beneath it was another trunk counting five hundred rings, which had evidently grown and fallen down before the huge log above it had commenced its growth. This carries us back much further into the past than human records reach, but it is by no means a solitary case. Buried trunks of trees are often found from twenty to sixty feet deep in the earth, in what the geologists call the glacial deposits. At Salem, Ohio, fifteen miles north of Dayton, a mass of drift wood is found from thirty-seven to forty-three feet beneath the surface of the ground, embedded in mud.

And up in Siberia the flesh of the extinct mammoth has been preserved in ice so completely that, on being exposed, dogs and bears greedily devoured it.

Prof. Winchell asks, if a material so perishable as muscular fibre could be preserved since an epoch which antedates authentic history, is it not more probable that the oily tissues of vegetable seeds could resist the tendency to decay under similar circumstances?

Now, in reply to your question, why the clover seed, if in the ground, did not germinate before you burned the brush, it may be said that possibly the hardy spear grass, having got possession of the soil held it with a conqueror's power, and thus made it impossible for the clover to raise its head. The destruction of this grass and of the tough sod it had formed by its innumerable roots, not only gave the poor over-powered clover a chance to germinate, but the ashes of its old oppressor, as well as that of the brush you burned, furnished the needed stimulus to rouse to life and action the dormant powers of the sleeping, but not dead, germ of the clover plant.

AN ACRE OF CORN ON A VERMONT HILL FARM.

The late decline in prices, the drought, grasshoppers, Western competition, &c., are discouraging many farmers in this section. Some have sold, others are trying to sell their farms, to go into other kinds of business. But as I have lived through several "hard times" in the past, I am disposed to look on the bright side, and to hope we may survive the present dark day, and perhaps be all the stronger for the lessons of economy it may force upon us.

Having just filled one of my corn bins, which by measurement holds one hundred bushels of ears, from an acre of land which was broken up last spring, I have referred to my account with this field, and think it shows that properly managed farming is still not entirely unprofitable. The following is a statement of the expense of this crop:—

Ploughing, one acre,	$4.00
Harrowing,	.80
Furrowing and putting manure in hill	3.75
Covering manure and planting	2.75
Hoeing twice	7.50
Harvesting and husking	10.40
	$29.20

Corn here is now worth about one dollar a bushel, and at present prices, the fodder is worth $20, — making, say, $70, as the value of the crop. No manure was spread on the land, and the value of that put in the hill, which would be differently estimated by different individuals, should be added to the expense of the crop, after proper allowance for its benefit to other crops. This is only a common yield, such as common farmers may expect; still many claim they can buy corn cheaper than they can raise it. Perhaps *they* can, but I do not know of any way by which I could have earned the value of this crop of corn easier than by raising it.

Hard times with mechanics, manufacturers, and

traders have in the past often followed hard times for the farmer,—possibly as a natural result. At any rate, I am not sure that all the young farmers, or old ones either, who are now fleeing to cities and villages to escape these hard times will find themselves entirely safe in their new avocations, or that all will be able to live there as much more pleasantly and make money as much more rapidly as they expect to do. JARVIS PRATT.

Reading, Vt., Oct., 20, 1871.

MY CROP OF CORN

Is now in the stook in the field, and is, I think, a little the best I ever raised. According to my rule for estimating the yield of corn, which you know is rather severe on brag crops, I estimate that I have raised from eighty to ninety bushels per acre, with twenty-five loads of manure to the acre. When husked I will send you a specimen which I think cannot be excelled in New England.

JOAB HAPGOOD.

Shrewsbury, Mass., Oct. 21, 1871.

SIDE-HILL OR SWIVEL PLOUGHS.

I was interested in the remarks and inquiries of your correspondent "Jones" in the FARMER of Sept. 2, on the subject of "Ploughs." I have used one of Holbrook's No. 4 reversible ploughs three years and I find the same trouble with it that he experiences with the Lebanon plough. The team in drawing, twists it over upon the mouldboard so that when the ground is dry it is almost impossible to keep the plough where it ought to be.

GIDEON SPENCER.

Vergennes, Vt., Oct. 16, 1871.

REMARKS.—The manufacturers of landside ploughs have found it necessary to furnish some kind of clevis machinery by which the line of draught may be changed to suit the different circumstances in which the plough is used. If such a clevis were applied to the swivel plough it must be changed as often as the mouldboard is reversed, which would be exceedingly troublesome. Hence the same object is usually secured by a change in the length of eveners for horses, or of the yoke for oxen. The largest sizes of ploughs require a longer evener or ox yoke than the smaller ones. With Holbrook's No. 4, the distance between the bows should not be less than from 24 to 28 inches, for oxen; and the evener, for horses, at least four feet. The hitch of the team should be of sufficient length to bear a little on the wheel. The team ought to walk square; if "Old Broad" on the off side keeps his end of the yoke ahead, the plough will take a little less land.

For the New England Farmer.

ECONOMY NECESSARY TO THRIFT.

The address of General B. F. Butler before the Norfolk Farmer's Club, of which I saw an extract in the FARMER, contains much that is of the greatest importance to the farmers of all our New England States, who, dissatisfied with their present lot, are contemplating a move to the West or some other locality that they hope will enable them to better their condition in life.

He shows quite conclusively that much of the unthrift among us is owing to the absence of that rigid economy that was so conspicuous in our ancestors, or rather to our reckless extravagance in all directions. Very few will be disposed to deny his statements, or to controvert his conclusions, however much inclined to apologize for the present condition of things.

The advice to farmers to teach their children frugality, sobriety, thrift and economy, is certainly very timely, to say the least. I have, through your columns, given expression to the same sentiments, and cannot but be gratified at finding them enforced on such an occasion by such an advocate.

Letters that occasionally come to me from the West give me an insight of the modes of life of the writers,—their farming, misfortunes and fears, and I am more inclined, as time passes on and new light dawns, to commiserate their lot than to bewail our own, at the East.

I know two young men (brothers) in Kansas who were tenderly reared here and whose every want was anticipated on the old farm. The oldest of the two was in Kansas two years before being joined by his brother, three years since. They have lived in a little shanty of *one* room, where they cook, sleep and receive their company. These young men are within five miles of the capital of the State and have good society within reach. Others I know who are living in the same manner in the same State, but are isolated from near neighbors and society. They do their own cooking, washing, mending, &c.

Now, how many young men with us can be found willing to subject themselves to the same mode of life *here*, in order to make a business start? I fancy they are few. They appear to be enchanted with such modes of life when seen at a distance, but revolt from them if proposed for their adoption here. Why is this so? Chiefly, I suppose, because they fear it would place them outside of the social circle they desire to move in, and they are probably correct in their conclusions. In all new settlements it is *expected* that every one will adapt himself to the surroundings, and confine his expenses within the limit of his means. He is not regarded as being *mean* or *penurious* if he does live in a log house of but one room, cook his own food, wash and mend his own clothes.

With us, public opinion, or fashion, or both combined, have become so tyrannical that but few have the manliness to face and defy them, even when the conviction is strong upon them that they ought to do so in order to avoid moral obliquity or financial disaster.

It is unquestionably true that we are hedged around with such adense atmosphere of extravagance that we dare not assert ourselves, lest we incur the stigma of being regarded as mean. Rather than incur this stigma there is no doubt that thousands are driven from their New England homes to other parts of our

country, and so far as real comfort is concerned have literally "jumped out of the frying-pan into the fire."

Is it not well for our young men to consider these facts, and see if they cannot call up sufficient self-reliance, self-respect and courage to enable them to adapt themselves to the circumstances of their lot, even if it involves living as our new settlers live at the West, and see if it will not eventuate in ultimate prosperity and happiness? We can with more confidence rely upon our crops maturing than farmers can at the West or South, and are sure of much better prices. In the localities referred to, they are in almost constant fear of tornadoes, fires, too much or too little rain, grasshoppers and other destructive insects, if I am to form an opinion from the impression I receive from friends there.

I hope we shall see, when another census is taken, that the *old* thrift of the farmers of New England is again returning to bless coming generations. K. O.

Sept. 25, 1871.

For the New England Farmer.

VALLEY OF THE MERRIMAC.

Autumnal Scenery—Harvest—Apples—Pears—Grapes—Cabbage Worm—Cranberries—Advance in price of Grain.

Summer with its heat, dust and showers is past and gone, and lovely, golden-hued Autumn, with its beautiful foliage and purple fruit, its soft bracing air and yellow sunlight, its frosty mornings and warm noons, is with us once more. To me it is the most beautiful season of the year. I cannot see the "melancholy days;" all is bright and glorious. As I stand at my window and gaze upon the panorama of beauty spread out before me, a wild gladness comes over me that no words can express. Up the hill-sides are ranged tier upon tier of scarlet and gold, of crimson and brown, of green and yellow, so softly blended, that no brush of artist can transfer the tints to canvass. I rode by the shore of Lake Kenoza yesterday afternoon, frequently stopping the carriage to admire the most lovely shading of rich colors I ever saw. Will science ever be able to give us instantaneous pictures with all these colors in the rich shading that I saw them last night?

People are busy harvesting. Potatoes are a little inclined to rot and do not turn out remarkably well. Apples are only in our memories as a thing of last year's growth. Pears have proved very poor with us, ripening very early and in most cases rotting at the core before mellowing, and prove poor eating. Our Buffums are the freest from rot, but are mealy, rather than juicy as usual; Swan's Orange are crabbed and poor; Lawrence is ripening now and nice; of Flemish Beauty we have not a pear, and why not remains a mystery; Vicar not ripe, but large and handsome. Grapes are very fine—uncommonly so; while there is great complaint among our neighbors about the ripening of all varieties. Our Concord's were beginning to ripen before Blood's Purple were gone, and ripened up beautifully even and handsome, while others say their Concord's are very late and ripen unevenly, and are also sour. We had a few of what we suppose to be Diana. They are very nice; small compact clusters of amber or rather green-white berries, small, rich, vinous, sweet, soft and luscious; thin skin, melting pulp and fine flavor—what more can we ask for a grape? We also had a few Rebecca—at least we call them by that name; berries medium size, pale red or amber, clear, vinous, melting, sprightly and a little acid;—bunches loose, large, shouldered,—a very handsome grape, so clear that you can see the seeds after the bloom is rubbed off; rather acid for eating but splendid to preserve.

The cabbage worm was very short-lived this season, doing but little damage. The crop was about two thirds as much as last year. Cranberries are in market at $4.50 and $5.00 per bushel and very nice. The cry was that the frost had cut off the crops and they would be scarce, but we have all heard the old story of the boy that cried "wolf, wolf," and we experience it often. Grain has risen twenty to twenty-five cents per bag since Chicago was reduced to ashes, but we now learn the elevators were not all burned. L. B. SAWYER.

West Amesbury, Mass., Oct. 13, 1871.

For the New England Farmer.

DOES FARMING PAY?

Profit on Milch Cows—Cost of Keeping—How to Estimate Profits—Subsoil Drainage—Radical Views.

I noticed in the FARMER of Sept. 9th, a short review of a series of Lectures on Agricultural Topics by Mr. Hyde. Now if the few extracts you have made are a fair sample of the whole, I think the tendency is to mislead rather than to impart useful instruction.

Under the head "Does Farming Pay?" he refers to the increased fertility of the farms in the Housatonic Valley during the last few years. To prove his position he says that the annual income per cow has advanced from $50 or $60 per cow to $80 and $100. If this has been effected without a corresponding increase of expenditure, it would really be interesting to know how it has been done. If the farmers in that section have found out how to make two blades of grass grow where but one grew before, it is certainly a great gain. He says a large farmer in Egremont has obtained the last year an income of $100 per cow from 21 cows, and that he expects by an addition of nine cows to his flock, to get an income of $4000, or an average of $133 per cow the coming year. As this is to be done by cutting and steaming the food, it seems that as this increase will be due more to extra labor and at-

tention than anything else, it will not be fair to set it down as an evidence of the increased fertility of soil in that locality.

Now let us examine this statement for one moment. I am ignorant of the way the milk was disposed of in the case referred to, but will suppose it to have been sold at the door, as the most profitable way of turning it into money. I base my calculation on the price of milk and feed hereabouts, within four or five miles of the cities of Salem and Lynn, where hay is worth thirty-five or forty dollars per ton, and milk four to five cents a quart at the door. Well, then, in order to get an income of one hundred dollars per cow, with milk at five cents, he must get an average of five and a half quarts per day from each cow through the year. This amount of milk might be obtained with a new set of cows for the first year, but I hardly think it could be kept up the second year. Now I suppose Mr. Hyde looked upon these cows as machines to work up the raw material raised on the farm and condense it into a more convenient form to be turned into money. Mr. Hyde, it seems, has made no allowance for keeping the cows. If we take English hay as our basis and calculate that twenty-five pounds per day, or its value in other kinds of feed per cow, we shall find that it will cost 41¼ cents a day for the feed of a cow, or as I will call it 42 cents to get rid of the fraction. If the cows are stabled from Nov. 1st to May 20th, as is the custom here usually, it will be 201 days, at a cost of $5.52 per day, or $1772.82 for the 201 days. If we add $1 a day for attention, we have an aggregate of $1973.82 as the cost of keeping the twenty-one cows through the winter, to say nothing about the summer keep. Deducting this from the income, leaves $126.18 as the nett profit on the cows, over the cost of wintering.

Now I don't for one moment question the truth of Mr. Hyde's statement, but I do say that in my opinion it proves nothing at all in regard to profits of farming. I think that the only true way to get at the real facts in the case is to do as all other men do if they are shrewd, where capital is invested, and that is to charge interest on the capital stock, allow for attention and depreciation, and give credit for betterments, and then strike the balance, and see whether there has been a gain or loss. Tried by this standard, I believe that farming, as a general thing, will prove not very remunerating.

I said above, that there should be an allowance for attention; by this I mean that the farmer and his wife should be allowed a fair compensation for their services. I see no reason why they should work from "early morn to dewy eve" for only a bare living, and not lay by anything to make them comfortable when old age takes them in a measure from the active duties connected with the management of the farm.

Mr. Hyde's remarks on the subsoil are not perhaps very guarded. He says "If of the same mineral constitution as the surface soil, then by a little care it can be made just as available for the production of crops." The question might be asked, if it is of the same mineral constituents as the surface soil what is the use of turning it up as it will not change the character of the soil?

The remarks upon drainage, it seems to me are expressed in too broad terms altogether. While I believe draining might be made useful to a much greater extent than it is, yet to assert the principle that it lays at the foundation of successful farming in New England, is overstepping the mark altogether. Farmers have been taught to believe that manure lay at the foundation; in fact, is the top and bottom of all successful farming. Mr. Hyde says, No, it is drainage. An opinion which a large majority of practical farmers will be slow to adopt. The future of New England farming looks gloomy enough, with competition bearing down upon it from every quarter. It becomes the farmer to be cautious how he enhances the cost of his farm, or extends his operations; as it is concentration, and not expansion, that is needed.

I make these remarks because I think that such radical views often promulgated by agricultural writers and speakers, are liable to mislead the practical farmer who needs correct information. J. L. HUBBARD.

Peabody, Mass., Sept., 27., 1871.

FALL MANURING.

A year ago, I had ten acres of wheat seeded down with clover, but on which the clover failed. I wished very much to get it into clover, and could hardly make up my mind to plough it up. I thought the clover might still come in. And so, immediately after harvest, I top-dressed it with barnyard manure, thinking that, if the clover came in, the manure would help it, and if it did not, that it would at any rate help any crop I might put on the land in the spring.

The clover did *not* come in. And so, with great reluctance, I this spring ploughed it up, and drilled in three bushels of peas and one bushel of oats per acre. The manure put on the previous September was of good quality, pretty well rotted, and we put on a liberal dressing, say fifteen tons per acre. It was spread as fast as drawn. The weather was hot and dry, and some of my neighbors thought the manure would all be burnt up, or at any rate that nearly all the virtue in it would evaporate and be lost. I never had any fears on this score. We harrowed it once or twice last fall, and re-spread any portion that the harrows pulled together; and there the manure lay, exposed on this bare ground, through the fall and winter, until it was ploughed under in the spring.

The result fully came up to my expectatinos. We had on the ten acres eighty loads of produce. The crop was pretty hard to thrash, as the straw and haulm was very long, and we raised the concave of the machine pretty high, and probably did not thrash very clean. Still we had 560 bushels from the ten acres, weighing 49 lbs. per bushel. Estimating the crop as oats, at 32 lbs. per bushel, the yield was equal to 88½ bushels per acre. I was fortunate enough to get in the crop without a drop of rain falling on it, and the straw will be fully as good as over-ripe or badly cured hay.

Of course, I cannot say that there would not have been just as good a crop if the manure had not been applied until spring, but I am inclined to doubt it. And, at any rate—and this was one of my objects—it gave an opportunity for the weed seeds in the manure to germinate last fall, and the spring ploughing destroyed the plants. The field is the one I "fall-fallowed" three years ago, and, for a run-down, weedy farm, the land is now encouragingly clean, and I expect a good crop of wheat on it next year, and a big crop of clover hay, with the chance of a good crop of clover seed the year following.—*J. Harris, in Am. Agriculturist.*

PORK RAISING AT THE WEST.

The great obstacle to success in raising pork cheaply, is in feeding hogs that are more or less diseased animals. The practice of feeding hogs of different ages raw corn, shut up in small lots or pens, at all seasons of the year, is sure to produce disease and debility, from which a stunted growth follows; and a condition of system that induces cholera, and other epidemic diseases. The hog, like most other animals, is naturally, and should be made, a grazing animal. Dry corn should not be fed to hogs under any circumstances, but should be soaked in water, if fed raw, and plenty of salt and wood ashes supplied at all times.

Hog Cholera.

The prevailing disease called Hog Cholera, confined to the corn district of the Western States, I am satisfied is induced by feeding corn without other vegetable food. The natural tendency of that kind of feeding is to produce worms and other animalculæ that infest the intestines of the hog, and from thence make their way through into the flesh, and infest the whole system. The peculiarity of the disease is that, if a hog becomes once infected it will never entirely recover. Sows once infected will never raise a healthy littler of pigs, even if kept for years. The pigs will usually show symptoms of the disease before they are a week old, and some, or all of them, die within one or two months. A large share of the hogs of the Western country are more or less infected in this way, and quite often where there appears to be no visible signs of disease. This kind of meat is not tempting to the palate. All white hogs seem to be sooner affected and die sooner than black or spotted ones I find the Berkshire will resist it much longer than any other hog.—*Iowa Homestead.*

COW WITHHOLDING HER MILK.

A cow will sometimes withhold her milk when her calf is taken away, but usually only for a short time. The remedy in such cases is gentle treatment, and a persistent effort to draw the milk and bathing the udder with cold water. The milking should be attempted at short intervals—at least three or four times a day. If the cow is treated kindly, and a continued effort be made to draw the milk from time to time, she usually yields the point, and in a few days will forget her calf and give down her milk regularly. If harsh treatment is resorted to, and the milking be neglected, inflammation of the udder and garget may set in, causing serious trouble and perhaps loss of milk entirely, if not other and permanent injury to the cow. It is not advisable to puncture the teat under such circumstances—at least, not until continued and thorough efforts have been made to draw the milk by hand in the usual way.

In case of obstructions in the milk duct, on account of coagulated milk or from some imperfection of the parts, a properly formed milk tube may sometimes be used with advantage. These tubes are constructed of silver, with a smooth, round point, pierced with holes, through which the milk may pass into the tube, and so arranged as not to injure the milk duct when introducing or withdrawing it from the teat. When pointed wires, straws, or goose quills are used for the purpose, they are liable to wound the parts and get up an inflammation in the teat, which may extend to the udder and spoil the cow for milk, at least for the season, if not permanently. This would be very likely to be the case if the weather be warm and the cow secrete a large quantity of milk.

We have seen wires, straws and quills used in numerous instances, and in nearly all bad results followed. In some cases the inflammation was so rapid as to make the cow in a few days almost unmanageable, and the final result was a broken udder and consequent loss of the cow.—*X. A. Willard, in Moore's Rural New Yorker.*

Insects.—Some idea of the injury caused by insects to agricultural products may be formed from the statement that, from seventy-four tons of Spanish wheat stored in a granary, ten hundred weight of beetles were screened out in one instance, and in another thirty five hundred weight were removed from 145 tons of American corn. The offender in both cases was a weevil, known as *Calandra orisæ.*

IMPORTANCE OF FARMERS' CLUBS.

FARMERS of the present generation have had the example before them of association, among merchants, literary and scientific men, mechanics, manufacturers, and of nearly all the classes of the industrial population.

These classes have combined for several reasons. First, because in union there is strength. They long ago learned that their scattered power accomplished little or nothing, but that when united in purpose, they were respected, and their objects gained. Second, to protect their interests. Striking examples of this may be found in certain classes of manufacturers in New England, and of importers and merchants in New York, whose zealous care watches with Argus eyes every change in State or National law, which would tend to affect their interests. To protect themselves in such cases, they always have in readiness some of their most astute and influential men, paid liberally from a common fund, who are too often able to shape the form of law to suit special cases, rather than to favor the general interest.

Thirdly, they unite in order to learn of each other. In the course of an hour, the grand results of a lifetime of studies, experiment and investigation, may be made known to a company of one hundred or a thousand persons, all of whom may be earnest inquirers in the same direction. The subject may be of vast importance to our national industry, or perhaps, as in the case of the cotton-gin, by our own Whitney, the gathering of earnest thinkers, may bring out new points to improve or perfect the work under consideration.

All these the farmer has always seen going on, but the examples, so plain that none could mistake them, or doubt of their utility when honestly conducted, have not led to their general adoption.

There are State and County Associations, and they are doing their work,—imperfectly, to be sure,—arousing attention and having many excellent influences. There are also Farmer's Clubs, but compared with the extent of territory occupied by farmers, and the vast importance of their profession, they are altogether too few and far between.

Let us, as farmers, quit some of the old hackneyed paths, and avail ourselves of the examples offered by the shrewd, money-making classes about us, and thus gain strength by union, protect our interests by a better knowledge of them, and gain ability to state and defend them, and learn of each other how to secure the best products in our art at the least cost.

Let us illustrate by a single case. The statement has been so long and so often made that "manure is the basis of all good farming" that it has become a maxim, a settled principle with farmers, so that their energies are mainly turned to securing it. But though so often repeated by books, newspapers and speakers everywhere, is it an indisputable fact? Are there no preliminary preparations required in the soil, which, if neglected, would leave the manure cold and inactive? Are not depth, pulverization and moisture all to be attended to before manure will have much influence upon the growth of plants?

Much larger quantities of manure are collected upon many farms now than there used to be. This is done by employing every available means. In some instances by an increase of fodder, and in others by the use of grain purchased from abroad, and by collecting all possible perishable articles to increase the general mass.

The increase of the hay crop, however, has not been equal to the increased cost and amount of fertilizers. These fertilizers have been applied, in too many cases, where the land was not fitted to receive them, and consequently, they had no power to act. If this be so, "manure cannot be the basis of all good farming." On many of our best lands, some action is indispensable, previously to the application of manure,—and that action is *to remove all surplus water in the soil.*

The reader can be referred to hundreds of acres which have been cultivated for fifty years with little or no profit, because the operation and importance of draining the soil were not understood. In some instances these lands were ploughed, well manured and cleanly cultivated, and yet yielded no profit. In others, no ploughing had taken place, but a crop of poor grass annually cut to the amount of about one ton to the acre. When drained and moderately manured, these same lands annually produce a crop of English grass of from two to three tons per acre.

Here, then, is a work for the farmers' clubs, so to illustrate the principles involved in it, and so to enforce its importance as to lead every one to investigate for himself, and to examine lands drained and undrained, lying side by side, and learn the comparative profits which they yield.

If this simple subject could be more understood, and lead to a corresponding practice by the members of a farmer's club, it would afford more profit to each member, perhaps, than any other arising from the winter's work. The subject, considered in all its bearings, might well occupy the attention of the club for several evenings and we have no doubt with increasing interest, as its importance should be developed.

There are numerous other topics which might be discussed, and a better understanding of which are essential to a profitable prosecution of the business of farming.

The club should be a thoroughly systematic organization. It should be an association for *discussion*, not for mere conversation. Members should prepare themselves for its duties. They must not be excused because they are not familiar with the subject proposed; but required to investigate it by reading, experiment and inquiry. It is these which will increase their knowledge, and qualify them for good farmers.

In many places farmers' clubs are among the best educational institutions in the towns where they are established. Their influences reach far beyond the mere cultivation of the soil, into the recesses of the family, schools, politics, religion and all the social relations of life. They tend to elevate and refine, and create a bond of sympathy and regard in the community; and this is true Christian progress. Below we give a form for the

Organization of a Farmers' Club.

Article 1. This Association shall be styled the ———

Art. 2. Its object shall be to promote the interests of agriculture, and the welfare of the farmer, to disseminate such knowledge, practical and scientific, as shall conduce to that end.

Art. 3. Its officers shall be a President, Vice-President, Secretary, and Treasurer, who shall be chosen annually by ballot.

Art. 4. The president shall preside at all meetings of the Club, with power to preserve order and appoint speakers and committees.

Art. 5. In the absence of the president all his power may be exercised by the vice-president.

Art. 6. The secretary shall keep a record of the proceedings of each meeting, which shall be read by him at the opening of the next meeting. He shall preserve all essays read by members, reports of Committees, and conduct whatever correspondence is directed by the Club.

Art. 7. The treasurer shall keep a correct account of all moneys received, shall disburse the same as directed by the Club, and at each annual meeting present a clear and correct statement of the same.

Art. 8. There shall be at each meeting a discussion upon a topic previously announced; a member being appointed to read an essay upon it, and two other members to commence the discussion as leaders.

Art. 9. New members may be elected at any regular meeting of the Club by signing the constitution and paying the sum of ———

Art. 10. The annual meeting of the Club shall be holden on ——— of each year, for the election of officers; and all officers so elected shall hold their office one year, or until a new election is made.

This constitution has been in force in a club for twenty years, and with two or three simple rules, has been found all that was needed.

The success and usefulness of the club will greatly depend upon the observance of strict parliamentary rules. There will be a constant tendency to *run into conversation*, which if allowed, would soon destroy the distinctive features of the club, and reduce it to a mere fireside conversation. All that we achieve is by labor. And it will only be by earnest, interested application, that the farmers' club will become one of the educational institutions of the State.

NEW PUBLICATIONS.

War Department Circular. The Practical use of the Meteorological Reports and Weather Maps. Office of the Chief Signal Officer, Division of Telegrams and Reports for the benefit of Commerce. Washington. 1871.

Middle-aged men can remember when the first telegraph wires in this country were put up between Washington and Baltimore, and when for the first time men forty miles apart could sit down and "talk" with each other. Such communication now exists between the people of all the large towns in this country, and even between us and cities of the old world. Among the advantages of such instantaneous communication, is the possibility of predicting for a brief time the probabilities of the weather and the progress of changes in the atmosphere.

This pamphlet details the means by which the "Chief Signal Officer" at Washington has been able to foretell coming storms, the approach of fair weather, &c., with an accuracy that has surprised those who have read his report of "probabilities" as published in the daily papers of late, and its object is "to put it in the power of the largest number to make use of, and to profit by, the labors of this Office; to enable them to test, and to avail themselves of some of the laws and generalizations by which meteorologists are guided; and to afford

the means by which at once to supplement, judge of, and aid the work of the Department." Though commerce is particularly mentioned in the title-page as the interest to be benefited by these meteorological observations and reports, they must be at least of equal importance to agriculture, as the interest of those who do business on the great waters is not more affected by the weather than is that of those who do business on the land.

CATALOGUE OF THE OFFICERS AND STUDENTS of the State Agricultural College of Michigan. 1871.

Too many of the States have treated the congressional grant of land for the establishment of institutions for "teaching such branches of learning as are related to Agriculture and the Mechanic Arts," much as the goose that laid the golden eggs was treated in the fable. Michigan, however, had the wisdom to spare the life of the bird, though the eggs she laid were not at first as numerous as was desired. Instead of putting their portion of lands into the hands of speculators for what it would bring at a forced sale, the managers held on to them, and now the prospect is that the institution will soon be self supporting. The names of 141 students are given, among which are eight females, together with the course of study, &c.

GUIDE TO THE STUDY OF INSECTS, and a Treatise on those injurious and beneficial to Crops; for the use of Colleges, Farm Schools, and Agriculturists. By A. S. Packard, Jr., M. D. With eleven plates and six hundred and fifty wood-cuts. Salem: Naturalist's Book Agency; London: Trubner & Co. 1869. Price $6.00.

This work was issued in numbers. These we have had bound, and find they make a volume of 702 pages. The title is a modest one — but after all, what is any book but a "*guide* to the study" of the subject discussed, however "exhaustively" it may be treated? The statement as to the number of illustrations — "eleven plates and six hundred and fifty wood-cuts," — is also a modest one, as there are 1238 figures of American insects, from a butterfly to an animalcule, executed in the best style of modern engraving. "Farmers and Gardeners" and others for whom this work is intended, who are liable to stumble at hard words, will be glad to know that the hardest of them are defined in a "Glossary" at the end of the volume. Though scientific terms are avoided as far as possible, most unscientific readers will probably have frequent occasion to consult the "Glossary," as in a concise description of an insect the use of technical terms is unavoidable.

As we do not feel competent to express an opinion of the value of this work compared with others that have been published on entomology, we will quote that of an English scientific journal, called "Nature," which says it is "certainly the best manual of entomology which the English reader can at present obtain."

BEET SUGAR.—We learn by the *Western Farmer* that the Beet Sugar Factory in Sauk county, Wisconsin, is now in operation, and employs from forty to fifty hands, half of whom work during the day and half at night. The supply of beets, from 250 acres amounting to some 2000 tons, is sufficient to keep the factory in operation from the middle of October to about the first of January. The daily product is stated at ten barrels, but with some additional machinery it may be increased to fifteen barrels without other additional expense. The sugar is white, with a slight taste not found in the best sugars, which it is thought will be remedied soon.

From the Country Gentleman.

THE SEED AND THE SOWERS.

Ever so little the seed may be,
Ever so little the hand,
But when it is sown it must grow, you see,
And develop its nature, weed, flower or tree;
The sunshine, the air and the dew are free
At its command.

If the seed be good, we rejoice in hope
Of the harvest it will yield.
We wait and watch for its springing up,
Admire its growth, and count on the crop
That will come from the little seeds we drop
In the great wide field.

But if we heedlessly scatter wide
Seeds we may happen to find,
We care not for culture or what may betide,
We sow here and there on the highway side;
Whether they've lived or whether they've died,
We never mind.

Yet every sower must one day reap
Fruit from the seed he has sown.
How carefully then it becomes us to keep
A watchful eye on the seed, and seek
To sow what is good, that we may not weep
To receive our own!

NEW CROPS IN CALIFORNIA.—The climate in California admits of a larger variety of crops than almost any other country, and the number cultivated is rapidly increasing. In addition to those now generally grown, the *California Farmer* calls attention to Flax, Hemp, the Ramie, New Zealand Flax, Cotton, Nut Trees, Oranges, Lemons, Limes, Almonds, Walnuts, Olives, Ornamental Evergreens, Forest Trees, all of which, it is believed, may be made profitable.

NOT TOO OLD TO PLANT TREES.—A correspondent of the *Iowa Homestead* tells a good story of David Cutler, of Frankville, Winneshiek Co., Iowa, who in 1863, when eighty-one years old bought a lot of apple trees of a nursery man; in 1869, when eighty-seven years of age, he bought another lot, handling the trees himself, and driving the team that drew them, and in 1871, when eighty-nine years old, exhibited at his county fair one hundred and nine varieties of apples—including specimens grown on trees of his last planting—and fifteen varieties of grapes—including many new and rare sorts.

AMOUNT OF PORK FROM A BUSHEL OF CORN.—Mr. Milton Briggs of Kellogg, Iowa, says, in the *Homestead*, that various experiments have proved

the fact that corn fed to hogs has produced all the way from two to twenty pounds gain, a bushel, according to the different modes of preparing feed, and the age, breed or condition of hogs fed. He is satisfied that over one-half of all the hogs fed in Iowa, do not produce over five pounds gross weight for each bushel of corn fed, which, counting hogs at $3 per hundred pounds, gives fifteen cents per bushel for corn.

VERMONT DAIRYMEN.—At the annual meeting of the Vermont Dairymens' Association at Montpelier, Oct. 25, Hon. E. D. Mason was elected president; W. P. Nash, C. Horace Hubbard and C. W. Brownell, Vice presidents, and O. S. Bliss, secretary and treasurer.

AGRICULTURAL ITEMS.

—The latest device for "breaking up" a setting hen is to put a couple of lumps of ice in the nest.

—It is stated that Texas, west of the Colorado, has taken $1,000,000 or more in gold for cattle and horses within one hundred days.

—Commissioner Delano, of New York, has decided that a farmer selling his produce from his own wagon, without any regular business stand, is not liable to pay a tax as a produce dealer.

—Experiments often repeated have shown that a plant may be raised in a flower pot from a seed and receive no nourishment but pure water, yet shall far exceed in weight all the soil in which it grew.

—Of the Michigan Agricultural College Farm, although it contains over 600 acres, but about 150 acres are under cultivation—the remainder being either heavily timbered or swamp land.

—Herkimer County, N. Y., ships annually cheese and butter, worth $4,500,000 in the market. St. Albans, Vt., ships cheese and butter, worth in the market $1,250,000. The village of Willington, Ohio, cheese worth $1,500,000.

—Moss peat is said to be one of the best materials for ice houses. When it is thoroughly dried it proves to be a poor conductor of heat, and when laid up around ice houses above the ground, is preferred by many persons to sawdust, tan bark, and the like.

—The *Country Gentleman* states that Messrs. E. L. & J. N. Sturtevant, of South Framingham, propose to publish all the facts they can obtain illustrative of the history, characteristics and value of the Ayrshire breed of cattle.

—The moment any creature is found curled up and shivering, there is a loss of comfort which costs the owner mills and cents, if not dollars and eagles; and it is far better economy to house stock and give them extra feed and care at this season.

—A wonderful instance of vegetable transmutation is mentioned by a correspondent of the *Iowa Homestead*. A farmer purchased of a tree peddler fifty different varieties of apples for a large orchard. In a few years these trees resolved themselves into only two kinds.

—A correspondent of the *Rural New Yorker* says: "Flies have been so bad on my horses that I found it almost impossible to work them. I took smart weed and soaked it in water, and in the morning applied it to the horses with a sponge, all over them, and found the horses to work along without any further trouble, the flies not annoying them in the least."

—On the farm of Mr. Cyrus G. Smith, of Newmarket, N. H., are a white oak fifty feet tall, and a hemlock ten feet less, the butts of which seem to be united one or two feet up. Further up a limb of the oak grows through the hemlock and then a hemlock through the oak, beating the Siamese twins by long odds.

—The question having arisen in a law suit whether certain animals were sheep or lambs, the decision was made, according to *Hearth and Home*, not by the age, which was fifteen months, but by testimony as to whether they had their first permanent teeth. Legally then a lamb becomes a sheep when it gets its first permanent teeth.

—Jeremiah Cousens, of Kennebunk, Me., eighty-one years of age, and a well known veteran of the war of 1812, has mowed upwards of seventeen acres of grass land this season and carried it lot by lot on poles to the barn, besides walking two and one-half miles to the house of his daughter, and attending to her gardening.

FODDER CORN.—It is better to sow the corn rather thick together at the rate of about three bushels per acre. In this way we get smaller stalks, which are more easily cured and better when fed to the cattle. I have the rows from 28 to 30 inches apart. After the corn is a few inches high, run the cultivator between the rows, slightly hilling it, and the corn will soon cover the ground, and there will be little trouble afterwards with the weeds. If it is sown so as to be cut early, a crop of turnips can be grown after the corn is taken off.—*S. F. Lane, Rockingham Co., N. H., in Country Gentleman.*

NEW VARIETIES OF WEEDS.—It is stated that there are now no less than two hundred and fourteen weeds which have been introduced into the United States from foreign countries, and principally from England. As a proof of the rapidity with which useless plants are accidently brought over the seas, it is said that in 1837 there were only one hundred and thirty-seven foreign weeds known in this country. As far back as 1672 a curious little volume, called "New England Rarieties," gave a list of twenty-two plants which the author considered had sprung up since the English had kept cattle in New England.

BUTTER DAIRIES---MILK ROOMS.

Many very considerable improvements in the methods of treating milk have been effected in a few years, and the rooms which but lately were deemed best adapted to that purpose are not now approved by the more progressive and intelligent diarymen. Formerly every facility for cooling the rooms was husbanded, and the location and construction were chiefly with reference to that end. But it has been found that the new method of cooling the milk by the use of water is more economical and every way preferable, and that a more elevated temperature of the room is desirable; and, as a consequence, other principles govern in locating and constructing them.

It is not worth while to enter upon an extended discussion of that subject in this connection, but it may be pertinent to remark that another season's experience of many individual dairymen confirms the position assumed by us and advocated at the meetings of the several dairymen's associations and elsewhere, last winter, that the cooling principle, whatever it may be, should be applied to the milk and not to the room, and that the milk having been once cooled should be kept in a warm room for the production of the most and best butter. Very satisfactory results have attended the use of the broad, shallow, bulk pans, with water underneath; but better results, so far as we have been able to make comparisons between the two systems at different establishments, seem to have attended the use of the deeper and narrower pans with water well up the sides; and this latter system possesses another advantage in that it much more economical of space.

We return to the discussion of our main subject with the remark that we no longer, as formerly, advocate the erection of separate dairy houses for butter dairies, nor indeed for cheese, if there is plenty of room in the house. We would, then, if building a new farm house, or rearranging an old one, place one dairy room just in that part of the house where it would be most convenient to the water supply and to the kitchen, for we would do our dairy work in the kitchen, or anywhere else but in the room where our milk is kept. If just as convenient, we would put it on the shady side of the house, but not otherwise. We would not put ourselves out at all to secure ventilation, other than by lowering or raising a window on special occasions, as currents of air are not ordinarily desirable. We would keep a small box stove in the room, and light a little fire in it in damp weather, even in midsummer, and that would answer every purpose of the most elaborate and expensive system of ventilation. One very decided advantage afforded by the stove ventilation is that the air taken up by it from near the bottom of the room, is damper and cooler than the more elevated strata, and the odor-charged gases which many dairymen believe are expelled from the milk by the cooling process, are mixed with these lower strata of air, as are the exhalations of any occupants of the room.

In regard to the amount of room required, we remark that the best equipped 40-cow dairy with which we are acquainted, occupies for setting purposes a room containing only about 120 square feet, though we confess we would prefer to have a little more elbow room. The pans used in this establishment are six feet long and one foot wide, and the same deep, set in wooden tanks about four inches wider. They are arranged in pairs, the water supplied by rubber hose from a penstock in one corner of the room, and both water and skimmed milk are drawn off through hose and tubing. The pans are lifted out and carried into the kitchen adjoining for cleansing and scalding, and no work is done in the room other than straining the milk and dipping off the cream. The churning is done in an adjacent shed in a revolving box churn, by horse power.

Very great economy of construction and operation will result from the adoption of the new method which we understandingly commend to any who are seeking the best results.—*O. S. B., Georgia Vt., in Co. Gent.*

Lawns and Grass Plats.—Lawns, grass plats and borders should have a top dressing of fine stable manure late in the fall—any time before snow covers them. They will then make an early growth in spring, and the grass will keep up its verdure until late in the fall, unless a protracted drought, like that of the present season, arrests its growth. October is a suitable month for preparing the ground for new lawns or green plats. The soil for this purpose should be trenched or subsoiled, but deepening is of very little service without drainage. Many fine pieces of grass have been made without trenching the soil, but the deeper the tillage has been, the longer the grass will retain its verdure in dry seasons. For either turfing or seeding, a fine, level surface should be made. If green sods are used, they should be taken from an old, upland meadow or pasture. Sods from low, moist land should never be used, as the grass is coarse in such places. The sods should be marked out with a line, and cut in pieces of equal width, so that they can be laid evenly. When the sods are of equal sizes, they should be beaten down level, and fine soil sifted in to fill the crevices.—*Small Fruit Recorder.*

—Alonzo Porter, of Hardwick, Vt., who last fall took the agency for the sale of a patent pitchfork, and signed what he supposed was an order for a specimen, was lately surprised by a notice from a neighboring bank that his note for $204 was due at that institution.

Ladies' Department.

For the New England Farmer.

DUTCH FLOWERING BULBS.

CULTURE IN WINDOW GARDENS.

"Say, what impels, amidst surrounding snow,
Congealed, the crocus flamy bud to glow?
Say, what retards, amidst the summer's breeze
Th' autumnal bulb, till pale decaying days?
The God of Seasons, whose pervading power
Controls the sun, or sheds the fleecy shower:
He bids each flower his quickening word obey,
Or to each lingering bloom enjoins decay."

The principal bulbs employed for indoor culture are Hyacinths, Early Tulips, Crocuses, Cyclamens, Narcissus, Jonquils, and Scillas.

They can be grown in moss, cocoanut refuse, sand or good sandy loam.

Hyacinths.

These bulbs take precedence of all others, on account of the fragrance and beauty of their flowers, whose exquisite forms and colorings are unsurpassed by those of any other class; and they are the most popular of all Dutch Flowering Bulbs.

No window garden can be complete without several of these lovely bulbs, and their culture is extremely simple. For flowering at Christmas they should be planted in September—but if planted now, they will flower in February or March in great perfection.

In selecting bulbs choose those that are the largest, plumpest and without break in the skin. The dark bulbs bear dark colored flowers, red or purple; and the light colored those that are white, yellow, blush or porcelain blue. To grow them in moss, wrap it in a conical form about the bulb, bringing it six or eight inches below the base of it, for the roots will run that far. Do not cover the whole top of it; dip the moss in water, and weave it around with copper or iron wire, hanging it with the same or with bright colored ribbons which should not be attached until the bulbs have good roots, and are ready to bear light and warmth. Then place the balls of moss on a plate and put it in a dark, cool cellar or closet, to allow the roots to form. This is very essential, unless the roots form well before the green sheath of leaves starts, the flowers cannot be as fine. They are all prepared, for a bulb is but the store house of leaves and flowers and its roots must start in darkness and moisture. Leave them for six weeks, looking at them every ten days to see if the moss is dry, for without dampness the roots cannot grow.

Bring them to light and warmth by degrees, first hanging them at a northeastern window in a cool chamber, and changing the location in a week or more until the flower stalk is well formed, when they can have all the warmth and sun you can give.

Hyacinths grow in glass dishes filled with moss or cocoanut fibre prepared for the purpose, require similar treatment. They must stay in utter darkness and cool moist atmosphere for six weeks, and neither moss nor fibre must be allowed to become dry.

Any common soup plate or China bowl, or even a tin dish will grow Hyacinths well, and when the bright flowers appear it can be lowered by a piece of ribbon or tape crossed underneath the bowl or dish, into a handsome casing.

They can be planted in wet sand in bowls or soup plates and covered with moss. They are very lovely when arranged with the pretty little blue Scilla Siberica, and miniature Hyacinths mixed with them. Place one in the centre and the Scillas about it, then the Hyacinths close around them, and miniature Hyacinths or Crocuses, white and versicolor, edging the whole dish. Of course they must be kept dark for six weeks; for this is required for all Dutch Flowering Bulbs.

For pot culture, take a six inch pot that will hold three bulbs, and fill it with three parts sand to one part leaf mould, wet it thoroughly, press in the bulbs leaving the upper part or crown uncovered; do not let them become dry after once being wet, for that is the ruin of all bulbs, yet the water must not settle at the roots, but good drainage of bits of charcoal should be provided in the bottom of the pots. Keep as prescribed for moss and sand and gradually accustom to light and heat.

Thus treated, they will come forward most rapidly and will blossom much sooner than them that are kept in the dark, only three or four weeks. The single sorts are the most effective for house culture, and the earliest varieties, those that will force the quickest, are the best to select.

The most desirable for window gardens are *Czar Nicholas*, pure rose color, bells and flower spike very large. *Amphion*, deep red, white centre, splendid truss of flowers. *La Dame du Lac*, rose pink, large compact flowers. *Bleu Mourant*, lovely deep blue, close clusters. *Charles Dickens*, porcelain blue, splendid flowers. *Prince Albert*, dark purple, very fine. *Uncle Tom*, violet black, very elegant. *Grand Vainquer*, pure white, large and beautiful. *La Candeur*, snowy white, fine close truss. *Grande Blanche*, *Imperiale*, blush white, large bulbs. *Victoria Regina*, pearly white, fine flower. *Voltaire*, blush white, very large truss.

Miniature Hyacinths.

These are the loveliest for dish culture. They require the same treatment as the larger flowered, and form very pretty groups. Among them are:—*Ami du Cœur*, *Deibiteche Sabaskanski*, which are rose colored; *Alice Maud*, a bright carmine, *George*, delicate porcelain; *Jessie*, pure white; *Lizzie*, dark red; *Nellie*, pure white; and *Uncle Sam*, deep blue.

There are no prettier flowers for children to cultivate than these miniature varieties.

Tulips.

The tulip ranks second in importance as a bulb

for window gardening. The *Duc Van Thols*, single and double varieties, are the species usually selected.

Of the single Duc Van Thols there are nine or ten various shades in red, white, yellow, rose, vermillion and variegated. They are not over six inches in height, and with their brilliant colors form most charming additions to every window garden. They are most effective when grown in groups, six to twelve in one pot, but they accommodate themselves to every situation, and blend admirably with a stand of flowers.

Among the double varieties are *Couronne des Roses*, a bright carmine; *Purple Crown*, deep purplish crimson; *Tournesol*, deep red, margined with yellow; *Imperator Rubrorum*, richest crimson; *Mariage de ma Fille*, white, striped with red; *Duke of York*, crimson, edged with white.

The culture of the Tulip is the same as that of the Hyacinth, only the bulbs being so much smaller, the roots will develop sooner, and four weeks of darkness will be sufficient for them. By cautiously cutting through the concentric coats of a Tulip root in autumn, longitudinally from the top to the base, and taking them off successively, the whole flower is disclosed with its petals, stamens and pistils. The flowers exist in other bulbs in the same manner, but the individual flowers of the tulip being larger, they are more easily dissected, and more conspicuous to the naked eye.

The Crocus.

There are many varieties which bear much larger flowers than the older kind. The Dutch florists have manipulated their bulbs with great success, and made the Crocus quite an effective flower.

For house culture, the largest varieties should be selected, and they can be planted in china saucers, preserve dishes, or any small plates, only taking care to keep the moss, fibre, sand or soil wet, never allowing it to dry off. They can be had in various colors of purple, blue, white, yellow, and striped either in white and blue, or yellow and brown, like the *Cloth of Gold*.

Among the newer varieties are:—

Albion, fine-striped; *Cloth of Silver*, pure white; *David Rizzio*, splendid dark purple; *Ida Pfeiffer*, light striped; *Lilaceus Superbus*, light blue, finely shaded; *Lord Byron*, perfect blue; *Madame Mina* fine striped; *Maria D'Ecosse*, pure white; *Prince Albert*, purple lilac; *Sir Walter Scott*, beautiful penciled lilac; *Sulphureus*, sulphur yellow.

Narcissus.

All the varieties of the Polyanthus Narcissus are suitable for house culture. The perfume is that of the Jonquil, and its flower resembles the Polyanthus. Mingled with hyacinths, and Duc Van Thol tulips they add much to a window garden. The *Double Roman*, if planted in September will be in flower at Christmas. The bulbs are so large that it takes a 5 or 6 inch pot for a single bulb—but three can be grown in eight inch pots.

The culture is the same as the hyacinth in every respect. The tip of the bulb should be left uncovered. The handsomest varieties are:—

Belle Princesse, yellow; *Bazelman Major*, white, yellow cup; *Dubius*, white, very delicate; *Grand Primo*, white, citron colored cup; *Grand Soleil d' Or*, fine yellow, orange cup; *Queen of the Netherlands*, white, deep yellow cup; *Bullocodium*, (Hoop Petticoat Narcissus,) is very fine for pot culture, it is called so from the form of its flower, and is a very beautiful species.

Cyclamen.

Cyclamen are not really bulbs, but are botanically described as *corms*, the fleshy roots being solid, as in a potato, and not in layers as in a hyacinth. The root should never be inserted more than one half its depth in the soil, and they can be placed in the window at once, as they do not require to be kept in the dark to make them push their roots. They should be planted singly in pots—a 5 inch will do if the bulb is small—not over an inch or so in diameter, but if of good size, a 7 inch is needed. They bloom best in a dark, peaty soil mixed with a little sand, or leaf mould and sand. Give water moderately when the leaves are starting, but when the flowers appear, it will need a more plentiful supply. After flowering, withdraw the pots from the window, and give little sun or water until another Autumn. There are three species, *C. Persicum*, which vary in color from light rose to rich crimson, and a pure white with a purple throat, *Autumnale flore alba* and *Dubra;* they flower in the Autumn. The *Coum* species are very ornamental with small bright rosy crimson and snow white flowers, blotched with deeper crimson at the base.

Jonquils.

There are three varieties, the double and single sweet scented, and the large Campernell or Bell-flowered. They can be cultivated like other bulbs, in clusters and mixed groups. Three roots can be planted in a five inch pot; five or six in a seven or eight inch pot, not covering the tip of the bulb, and they are very lovely in form, hue and fragrance.

Scilla.

Scillas are sparkling gems for window gardens, and are quite popular and fashionable at present, for there is a fashion in plants as well as in dress. And what is *a la mode* is of course, beautiful. The flowers are borne in spikes of six to twelve, the individual blossoms being gracefully pendant and bell-shaped. They are very dwarf in habit, averaging not over six inches and the prevailing colors are blue and white. *S. Hyacinthoides*, *S. Peruvana*, *S. Sibeica*, *S. Amana*, *S. Campanulata*, are the handsomest for in-door blooming.

Glasses for Hyacinth Growing.

In selecting hyacinth glasses be sure to choose the deep blue shades, as this color is best adapted to forcing the roots; fill up within an inch of the bulb, but do not let it touch the water. And soon the tiny roots will strike downwards towards it.

Keep bits of charcoal in the water to purify it, and it need not be changed. To encourage the flowering of bulbous roots,—take three ounces of nitre, one ounce of salt, half an ounce of white potash, half an ounce of white sugar; dissolve them in one pint of soft water, and put ten drops of it to each hyacinth glass twice a month.

We beg our readers to cultivate some or all of the Dutch Flowering Bulbs because they are so bright beautiful, and fragrant. No other flowers possess so many charms! Plant Hyacinths and say with the poet—

"And the Hyacinth purple and white and blue,
Which flung from its bells a sweet peal anew
Of music so delicate, soft and intense,
It was felt like an odor within the sense." S. O. J.

DOMESTIC RECEIPTS.

BOILED INDIAN PUDDING.—Two cupfuls of sour milk, two spoonfuls of molasses, one teaspoonful of soda, one of salt, half a cupful of sifted flour, mixed with enough corn-meal to make a batter not very stiff; half a cupful of chopped suet, from which all the stringy substance has been removed; a cup and a half of chopped sweet apples, or huckleberries, dried or fresh, as you have on hand. Boil from two and a half to three hours.

GRAHAM FLOUR MUFFINS.—One pint of sour milk, a small teaspoonful of soda, one tablespoonful of sugar, and Graham flour sufficient to make a thick batter. Bake in rings, or drop the batter in spoonfuls on a flat tin. Add a little salt before baking.

QUINCE PRESERVES.—The orange quince is the best to preserve. Peel and core the quinces; weigh a pound of crushed sugar to a pound of quinces; put the peel and cores into a kettle with just water enough to cover them. Let them simmer about two hours; then strain the liquor and put it back into the kettle, and put in it as many quinces as the liquor will cover; boil them until they are tender, take them out, and put them on a flat dish to cool; put in more until all are boiled; then put the sugar in, and let it boil until it becomes a syrup; then put in as many quinces as the syrup will cover; let them boil about thirty minutes, keeping them covered, so that they may retain their light color; put them on a flat dish to cool; and then more until they are all boiled; then boil the syrup until all the water is boiled out of it. When the quinces are all cool, put them into jars, and strain the syrup while it is hot through a very fine sieve on the quinces.

MAKING SAUER-KRAUT.—The best we ate ever we made ourselves for many years, and for a considerable time with our own hands, and always from Savoy cabbage. It was manufactured in this wise: In the first place let your "stand," holding from a half barrel to a barrel, be thoroughly scalded out; the cutter, the tub and the stamper also well-scalded. Take off all the outer leaves of the cabbages, halve them, remove the heart and proceed with the cutting. Lay some clean leaves at the bottom of the stand, sprinkle with a handful of salt, fill in half a bushel of cut cabbage, stamp gently until the juice just makes its appearance, then add another handful of salt, and so on until the stand is full. Cover over with cabbage leaves, place on top a clean board fitting the space pretty well, and on top of that a stone weighing twelve or fifteen pounds. Stand away in a cool place, and when hard freezing comes on remove to the cellar. It will be ready for use in from four to six weeks. The cabbage should be cut tolerably coarse. The Savoy variety makes the best article, but it is only half as productive as the Drumhead and Flat Dutch.—*Germantown Telegraph.*

CLOSE OF SECOND SERIES.

With this number we close the second series of the MONTHLY NEW ENGLAND FARMER, and also suspend its further publication. We do this in order to give more attention to our Weekly edition, finding it difficult to issue both editions without allowing one to interfere with the proper conduct of the other.

We can for a limited time supply complete sets of this work, from 1867 to 1872—five volumes—for $8. The set forms an agricultural library of great value for any farmer, being largely original, and embracing contributions from not less than 1500 practical farmers. Any single volume will be sent for $2, and postage (30 cts.)